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For Whom the Bell Tolls*

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"NO man is an *Iland,* intire of it selfe; every man is a peece of the *Continent,* a part of the *maine:* if a *Clod* bee washed away by the *Sea, Europe* is the lesse, as well as if a *Promontorie* were, as well as if a *Mannor* of thy *friends* or of *thine* owne were; any mans *death* diminishes *me,* because I am involved in *Mankinde;* And therefore never send to know for whom the *bell* tolls; It tolls for *thee.*"—JOHN DONNE.

Almost three centuries before the founding of the New Jersey Health and Sanitary Association, the poet John Donne emphasized in the above words the central theme of my remarks for this evening. They are peculiarly appropriate because the first official meeting of the New Jersey Health and Sanitary Association on October 13, 1875, resulted in a permanent organization which was to devote almost three-quarters of a century to activities dominated "by the vision of lifting the load of preventable sickness and death from mankind."

This organization recognized and accepted man's responsibility to man and to society for the saving of life. It accepted the thesis: "any mans death diminishes me, because I am involved in Mankinde."

Already in 1875 it sensed the responsibility in a democratic society of all citizens to the community. It added to the Bill of Rights a parallel Bill of Duties. Although every citizen, it was agreed, is guaranteed the essentials of a decent life, the association recognized the parallel axiom that every citizen owed a responsibility to the community.

These parallel duties and responsibilities have been ignored perhaps for a time in this country. They have been revived in the last several years by a renewed emphasis on the strength as well as on the failures of democracy. Once more the truth is being driven home that "no man is an Iland, intire of it selfe."

It is fruitful, therefore, before this group, to take stock of how well responsibility has coped with public health problems and practices; to describe how these practices have changed and expanded in recent years; to point

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out how such changes have brought changes in requirements for professional service and in the structure of administrative practice; and to comment on what the implications of these issues are during the war and post-war periods.

CHANGING CONCEPTS

Within the past five years a revolution in public health practice has occurred in the United States which in some ways has paralleled that of over a hundred years ago in England. The late Edgar Sydenstricker, perhaps more than any other single individual, gave impetus to an expanded sphere of public health practice which was incorporated in the Social Security Act of 1935. For the first time a mechanism was established which at one stroke made it possible to expand the field of public health activity to catch up and keep pace with the enriched social service development of that same period.

By that one Act the following nondebatable assumptions were written into the law:

1. The health of the people is a matter of public concern.
2. Ill health is a major cause of suffering, economic loss, and dependency.
3. Good health is essential to the security and progress of the nation.

The frank acceptance of these axioms marked a delayed but rapid transition from the simpler standards of public health practice to the wider, more complex and more deep-seated issues of future public health practice.

Through the apparently minor addition of Titles V and VI to the Social Security Act, almost a complete change has taken place in American public health practice. Incidentally an annual total of new money for health work from official sources results, with well over a hundred million dollars of expenditure since 1935.

In the words of Surgeon General Parran: "Public Health has become a people's cause." He compares this revolution with the Renaissance and the French Revolution in the fields of art and literature, and politics, respectively.

It may well be asked why this revival occurs at this time and what aspects thereof are likely to dominate the future scene. The last 10 years have witnessed some of the most striking social and political upheavals the world has seen. In all of them one may detect the hope for a newer and better world and a desire to be born well and to live well.

The American people have been shocked, in addition, into the realization of the problems of health by the recent examinations of its most favorable male age groups, under the terms of the Selective Service Act. The percentage of rejections of the young men of our country at ages 21 to 35, as physically unfit to enter training for military service or fit for limited service only, provides an important index of our general national health.

It is startling to be reminded once more that this excessive rejection rate should occur in perhaps the richest country in the world with respect to resources, man power, and scientific capacity.

The significant aspect of this recognition, however, lies in the militant desire of the public to develop plans and programs for correctives. Virtually all lay and professional groups insist upon a prompt attack on the state of affairs which the record discloses. No longer are people willing to wait for the leisurely recognition and elimination of tuberculosis, the venereal diseases, rheumatic fever, defects of the teeth and of the eye and of the sequels of recognized and unrecognized nutritional deficiencies.

Besides these more obvious demands, the most difficult problems of the future will require a search for reliable

measures of physiological fitness so as to detect the onset of many of the diseases which will appear with increasing frequency as the average age moves higher and higher in this country.

We must examine the result of the severe demand on the nervous system of our people, due not only to shifts in the occupation of our citizens, but in the consequent change in the whole mode of life which such shifts in occupation and the growth of urbanism have brought about.

Dr. Walter B. Cannon points out a new world of medical investigation, where "the abilities of the same individual would be followed in childhood and adolescence, in adulthood and old age, as affected by the demands of school or the exacting periods of puberty and the climacteric, by prolonged labor, fatigue, high altitude, different sorts of training, insomnia, worry and dissipation. Information thus obtained would furnish a measure of physiological age, a measure much more important for many judgments than chronological age."

PERSONNEL STANDARDS

With such broadened areas of professional responsibility have come naturally increased demands upon professional workers. It should be obvious that neither the novice, the ill-trained, nor the untrained can properly encompass the scope or develop the programs so essential for this new kind of public health practice. Even with the necessary professional equipment, one could not do real justice either to the responsibility or to the public if the initiation and administration of such programs are relegated to intermittent supervision and attention.

It is for these reasons that many groups, notably the American Public Health Association and the American Medical Association, have struggled for years to build up further criteria for professional training and attainment. Devices and approaches are at hand for evaluation of professional accomplishment.

Elaborate extensions of the possibilities of control have been and are being met in many of the counties of the United States. Strong efforts are likewise being made to introduce into the schools of the nation a proper understanding, on the part of teachers, of modern public health standards and practices, which might be instilled into the minds of that most hopeful sector of our population, the young.

These same desires for raising the general level of public health performance have pushed forward the introduction of merit systems so that professionally equipped individuals may be assured a minimum of interference by political forces and a maximum opportunity for public service. These systems, of course, must be so designed and so operated that they do not become a mere cloak for the protection of mediocrity rather than an administrative device for the protection of competency and the true enrichment of public offices.

THE ETERNAL LAG IN SOCIAL ORGANIZATION

Perhaps in this brief summary of what has been going on in the last five or six years some oversimplification has occurred which may indicate either that the program was easy or that the obstacles are all cleared. This is far from the truth. None of these profound changes have taken place without contest and virtually all of them are perhaps a century in arrears. The recognition of the social responsibility for public health practice appears in the literature and in disconnected, although important, efforts prior to 1935. There has, however, been a lag in time between the recognition of the need and

the implementation of administrative structure to meet that need.

Volumes have been written, of course, for many years about the fact that sickness and death recognize neither rank nor class, but it is still not too generally accepted that the use of sulfonamide drugs should not be determined by the income but by the disease of the patient.

In all of these discussions, of course, the hoary arguments of over a hundred years ago take on new life in opposition to any advance in public health practice. It is still charged that there is something debilitating to the individual in the effort to help him to live and let live. Even at this late date some people feel that it destroys character to prevent an individual from getting tuberculosis.

When the pseudo-desires to preserve character fail, only to kill the individual, then prompt recourse is still frequently had to the legal abstractions of preserving freedom against the vicissitudes of social organization. The late Justice Brandeis referred to this eternal struggle as "the abstract dialectics between 'liberty' and the 'police power,'" while his earlier associate on the Supreme Court bench, Justice Cardoza, described the battle in the following terms:

"Judges march at times to pitiless conclusions under the prod of a remorseless logic which is supposed to leave them no alternative. They deplore the sacrificial rite. They perform it, none the less, with averted gaze, convinced as they plunge the knife that they obey the bidding of their office. The victim is offered up to the gods of jurisprudence on the altar of regularity."

Sir John Simon well characterized this behavior in England about a century ago:

"When your orders are addressed to some owner of objectionable property—of some property which is a constant source of nuisance, or disease, or death; when you would force one person to refrain from tainting the general atmosphere with results of an offensive occupation; when you would oblige another to see that his tenantry are better housed than cattle, and that, while he takes rent from lodging, he shall not give fever as an equivalent—amid these proceedings you will be reminded of the 'rights of property' and of 'an Englishman's inviolable claim to do as he will with his own.'"

These issues of regulation versus liberty are important today more than at any other time in our history, but the resolution of this contest will be intelligently accomplished by insistence upon a well grounded principle recognized by the readers in law that "law must be stable and yet it cannot stand still" (Dean Pound).

Many years ago, for example, Justice Brandeis, in the case of Curt Muller versus the State of Oregon, pointed out "as healthy mothers are essential to vigorous offspring, the physical well-being of woman becomes an object of public interest and care in order to preserve the strength and vigor of the race." This profound principle now has far greater acceptance than it had 20 years ago. We may see before long its further extension into the field of housing, where Mayor LaGuardia over 20 years ago stated that "once landlords were not compelled to heat their tenements. In years to come it will be the law to refrigerate them in summer, on the ground that life depends upon it—life for the 99 per cent who cannot go to Newport."

All of this simply means that man's desire for safeguarding birth, for protecting life, and for deferring death will continue to lead to new demands. The public health profession will be eternally confronted with the necessity of adapting the fruits of science to the accomplishment of these ends. In a war

period, such as now, these demands are more dramatic than normally. It becomes practically important to prevent disease during war. It becomes a matter of "total war" efficiency to insist upon positive health. Three-thirds of a nation *must* be well fed and well protected, if for no other reason than to resist an enemy. The results of successful public health control are tangible, obvious, and compelling.

The drama of war makes a gun or an airplane an important unit in a vital statistics table, because a rejected gunner or airplane pilot is not only an indication of a public health failure, but of a potential collapse in total defense. Men, therefore, *must* be kept well, rather than *should* be kept well, as is the phrase in peace time.

One may well ask why this emphasis might not properly be transferred to post-war acceptance rather than once more relegated to the files of history.

In these new efforts the New Jersey Association has a major part to play. It must resume and reactivate the eternal struggle to inform the lay public as to the possibilities of improving the public health. Now as never before it must be emphasized to you that "a successful code of hygienic life cannot be created out of a vacuum and applied like a poultice to the men and women in the United States." To lead them requires professional equipment, courage and energy.

That the task is still worth the effort is made clear by the still too startling fact that today, even as we met, the bell tolled in New Jersey over 125 times. During dinner alone, each one of us might have heard the doleful dirge reminding us over 20 times that preventable death challenges the vision and the spirit of your group. I have no doubt that your attentive ears have heard and that your courageous minds will accept this challenge, as you did in 1875.

Four Years of Contraception as a Public Health Service in North Carolina

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SINCE the spring of 1937 when the North Carolina State Board of Health officially accepted contraception as one of the maternal health services to be offered to the needy mothers of the state through local health centers, widespread interest has been evinced in the program. That such a radical innovation should have been pioneered in a southern state is in itself a remarkable occurrence. Articles in both professional and popular periodicals have supplied the reading public with information on some of the details of the program. However, one aspect of the significance of this four year old program has received scant attention. Commendable as it may be that 70 per cent of the underprivileged mothers of the state may now receive instruction and supplies to aid them in spacing their children, of greater import for social and medical planning in all areas is a demonstration of the technics by which such an innovation in population policy has been translated from theory into practice. For the technics have been so normal and so successful that in the four years of operation of the North Carolina program of contraception as a public health service, practically no opposition has been manifested.*

At the beginning of the program in 1937 the State Board of Health sent a letter to each county health officer stating that he might, if he considered it desirable after securing the approval of the county medical society or the county board of health, add instruction in contraception to the other medical services provided for the underprivileged. The assistance in such a program of a special field consultant, Miss Frances Roberta Pratt, together with the contraceptive supplies needed for the first months of the work was offered and financed through a special contribution to the State Board of Health.

Four years having elapsed since the beginning of the project, it was felt that a review would be of value, both in estimating the results secured and in guiding the plans for its future. Moreover, since North Carolina had been the first to undertake such a state-wide program, it seemed that the review would be of interest to other states which had begun such work more recently or were considering it. Early in 1941, therefore, statistics were assembled from the offi-

* The North Carolina State Board of Health has received only one letter voicing criticism of the program.

cial annual reports of all of the health centers to the State Board of Health. In addition, one of the writers (F. R. P.) under the joint direction of the State Board of Health and the Institute for Research in Social Science of the University of North Carolina, visited 37 of the larger and more accessible of the contraceptive centers. These served 47 counties and 4 city units and had cared for 90 per cent of all the contraceptive patients. The results are given as of January 1, 1941.

THE NUMBER OF CONTRACEPTIVE CENTERS AND PATIENTS

The rapid increase during the four years in the number of the centers where information on methods of pregnancy spacing can be secured is shown in Table 1, compiled from the official reports. Of North Carolina's 100 counties, 81 have public health units either within the county or in collaboration with one or more other counties. Of these health-center-equipped counties 61, or 75 per cent, have added contraceptive instruction to their medical services. The inhabitants of these counties, presumably having access to such instruction, comprise 70 per cent of the population of the state.

Early in the course of the program, instructions were issued to the health centers that the numbers of contraceptive patients should be included in the Maternity Health section of the standard reporting forms for the county health units. As the service was new, however, and as, until December, 1940, there was no printed item for this service in the reporting forms, the reported numbers are undoubtedly smaller than the numbers of patients actually given the service. This reason for underreporting should be kept in mind in interpreting the data in Table 1.

The numbers of patients admitted in each year for contraceptive instruction or supplies are recorded in column 5 of the Table. As it is the custom to close all cases at the end of each year, readmitting the cases at the first visit in the next year, the reported figures do not allow one to ascertain the total number of different families which have been given service since the beginning of the program. However, as the renewal of supplies is commonly needed at least once a year, the total for the four years, 6,220, indicates with reasonable accuracy the number of patient-years of service, a quantity often unavailable with other forms of recording.

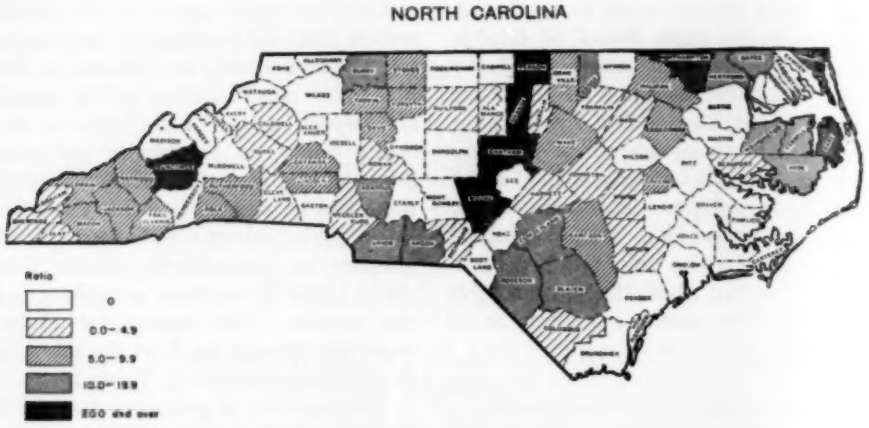
The rapid increase in the number of contraceptive patients is due in part to

TABLE 1

Counties Having Public Health Centers and Contraceptive Services; Numbers of Contraceptive Patients, 1937–1940

	Counties Having Health Services *			*Contraceptive Patients*	
		With Contraceptive Services			
Year	*Total*	*Number*	*Per cent of Total*	*Number*	*Number per 1,000 Women of Childbearing Age (20–44)*
1937	64	6	9	236	4.1
1938	78	38	51	867	4.2
1939	75	53	71	1,599	4.8
1940	81	61 †	75	3,233	9.2
Year unspecified				285	
Total				6,220	

* There are 100 counties in North Carolina.
† Served by 47 centers including 5 connected with city units.



Map 1. RATIO OF CONTRACEPTIVE PATIENTS TO 1,000 MARRIED WOMEN OF CHILDBEARING AGE, NORTH CAROLINA, 1940.

the increase in the territory covered in the successive years. To obtain a measure of the relative degree of coverage of the population the number of patients was related to the number of married women of childbearing age (20–44) in the areas included in the program. The "coverage ratios" per 1,000 such women are shown in column 6 for the four years. This ratio has increased until, in 1940, about one married woman of childbearing age out of 100 in the areas covered was receiving contraceptive service through these public health centers. The 1940 ratios in the various counties, one as high as 39 per 1,000, are shown in Map 1. As the program is a new one, and consequently not known to all who might wish to avail themselves of it, it seems probable that the increase in coverage noted in 1940 will continue as the program is carried on in future years.

It would be preferable to use as a base for the coverage ratios not the total number of married women of childbearing age, but the number who because of lack of financial resources are considered "eligible" for service in the centers reviewed. The fact that in 1940 nursing service was given to 25 mothers per 100 live births in the area studied suggests that the "eligible" population is approximately one-fourth of the total, and, consequently, that about 3.7 per cent of this "eligible" population received contraceptive service from the centers.

The counties with the highest ratios on the whole are those where the program has been in operation the longest. It is reasonable to expect that within a few years the coverage ratios will increase to an extent where there will be an appreciable effect on the birth rate, and on the infant and maternal mortality rates, although analysis to date has shown no such effect.*

From the annual reports of the centers it was found that in 1940 an average of 2 visits either in the clinic or in the home were recorded for each contraceptive patient. This may be interpreted as indicating roughly about one follow-up visit per year to new patients admitted during the year, and about

* An analysis including correlation of coverage ratios of 1938 and 1939 with the changes between the birth rates and mortality rates of the year in question and the following year, showed no discernible effects. See Jerry Daniel, Differential Fertility in North Carolina, unpublished master's thesis, University of North Carolina, Chapel Hill, 1941.

two visits to old patients carried over from the preceding year.

SOURCE OF REFERRAL OF PATIENTS

The staff of each of the 37 centers visited was asked for an estimate of the proportion of cases coming to them from each type of referral source. These estimates were then combined with the patient-years reported by the clinic in question. This calculation indicated that for the entire area public health nurses were responsible for 67 per cent, private physicians for 15 per cent, and social workers for 12 per cent of the referrals. Probably the most frequent type of contact is that where the mother has received postpartum service, since 92 per cent of the centers report that postpartum patients are informed of the service where contraception is especially indicated. That information regarding the service is not universally distributed to postpartum patients or that these, because of the effort involved or for other reasons, do not accept it in a large proportion of the cases is indicated by the fact that in 1940 the contraceptive patients from all sources amounted to only 27 per cent of those receiving postpartum nursing care.

CONTRACEPTIVE METHODS USED

Certain general policies of administration of the local contraceptive programs have been set up in broad terms by the North Carolina State Board of Health. These permit great flexibility in the adjustment of procedures to each local situation. The choice of method, for example, has been left to the health officer in each instance. In 30 of the centers foam powder and sponge was reported to be the method most frequently employed. This was especially the case where rural surroundings and the resulting distances made the patient's home the most frequent place of instruction. The remaining 7 of the centers reviewed gave diaphragm and jelly as the most frequent prescription. Twenty-three of the centers reported that they use only one type of contraceptive.

Estimates by the staff of each of the 37 centers visited of the proportions given each method were applied to the patient-years reported. The totals indicate that in 5,596 patient-years of service, foam powder and sponge were used for 72 per cent, diaphragm and jelly for 27 per cent, and condom for 0.5 per cent. Several centers reported that a change from foam powder and sponge to diaphragm and jelly was contemplated.

METHOD OF EXTENDING SERVICE

Flexibility of procedure to adapt to local conditions is also shown by variations in the method of giving the service. Four different methods are used with appreciable frequencies, although health department clinics and home visits are by far the two most important methods. Based on the estimates of the staffs of the 37 clinics and the cases reported by each, it was found that 57 per cent were instructed in the health department clinics, 35 per cent in home visits by public health nurses under the health officer's direction, 3 per cent by private physicians, and 1.6 per cent in hospital clinics. The pattern of providing clinics for the women who can get to them in cities and towns, and of nurses making home visits to those in more distant rural areas seems to prevail and appears to be a rational policy.

The acceptability and effectiveness of the different types of contraceptives employed can be determined only by analysis of the individual records. A preliminary analysis of the records of two selected centers by Richardson and Klaiss suggests satisfactory results from the foam powder and sponge technic. All but 3 of the centers are now using

for each patient the standard contraceptive record form recommended by the State Board of Health. Although few clinics to date have filled out these forms in full, 14 of the most important centers have agreed to record for subsequent patients all data required for research purposes.

DISCUSSION

The data on volume and distribution by centers of contraceptive patients indicate that the North Carolina program of contraception has passed the critical initial period and is now firmly established as an integral part of the maternal health services offered by local centers. The trend of increasing coverage ratios suggests that within a few years the program will exercise an appreciable influence in the direction generally advocated in recommendations for American population policy.

The local variations in the program indicate the local autonomy exercised in setting up the service. The lack of an arbitrary pattern superimposed from above is further indicated by reported and projected changes in procedure, which also give hope of ready adaptation to future discoveries with bearing on acceptability and effectiveness in the contraceptive field.

Since it is becoming more evident that adaptation of the method to the individual patient, often after trial of several methods, leads to greater satisfaction and to greater faithfulness and persistence in pregnancy spacing measures, it is perhaps unfortunate that so many centers report restriction to a single method. In part this is explainable by rural conditions and by the lack of time resulting from the many health procedures for which the staff is responsible.

SUMMARY

Four years after the beginning of the state-wide contraceptive program under the North Carolina State Board of Health, pregnancy spacing services have been provided for underprivileged women in 47 centers serving 61 counties which constitute 75 per cent of those having health centers. In 1940 those receiving contraceptive instruction numbered 3,233, being approximately 1 out of every 100 married women of childbearing age, or about 4 out of every 100 underprivileged women in the area served by the health centers. An average of two visits for each patient was recorded. Public health nurses constituted the chief source of referral of the patients. Foam powder and sponge was the most frequently used type of contraceptive, with diaphragm and jelly the next most frequent. More patients were given the service through public health clinics than by any other method, the next largest number by public health nurses sent by the county health officer to the patient's home.

With practically no opposition, pregnancy spacing has become an integral part of North Carolina's public health services. As in the early history of other new health services, the instruction has thus far been requested by only a small proportion of the population. This proportion has been increasing.

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NOTE: We wish to express appreciation to Dr. Clarence J. Gamble for his suggestions in planning the study and for his help in the preparation of the manuscript.

War and Health in Britain*

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WHEN I received the invitation of the American Public Health Association to attend its Seventieth Annual Meeting, the Minister of Health, Mr. Ernest Brown, realizing the importance of the occasion, was insistent that I should let nothing stand in the way of my acceptance. I myself appreciate deeply the compliment you have paid me, and I am particularly glad to have the opportunity this evening of thanking you in person not only for the invitation but also for the honor you did me a few years ago in electing me an Honorary Fellow of the American Public Health Association.

If you asked the Medical Officer of Health of one of the large cities in Great Britain how the war had affected his work, he would probably tell you that about 90 per cent of his time was spent on emergency duties and only about 10 per cent on the more familiar tasks of peacetime administration. By this he would not mean to imply that he had almost wholly forsaken the practice of public health but rather that the perfecting of schemes for the prevention of mutilation and death from air attack had tended to take the place of plans for the prevention of disease and that a totally new set of problems had been thrown up in consequence of the war. Health departments with their staff of doctors, nurses and sanitary inspectors have in the past shown themselves capable of dealing with most types of emergency, so new duties are apt to be placed upon them sometimes to the detriment of their existing and no less important tasks. I shall try to give you some idea of how the work of our public health departments has been affected during the past three years and to show you that the major disasters we feared have not yet occurred, whereas matters we thought of small moment have assumed unexpected importance. In all wars there is a reversion to fundamentals and this war offers no exception to the rule.

First of all we have experienced enormous movements of certain sections of the population from one part of the country to another. During the first 18 months of war over 2¼ million mothers and children in England and Wales were transferred, under official evacuation schemes, from our big cities to smaller towns, villages, and the countryside, where they were in the main billeted in private houses. Many of these people have been evacuated two, three, or even four times for, as bombing became less frequent, there was a drift of evacuees back to the towns from which they came. Well over a million of these people are still in billets. It is fortunate that our housing improvements of the last 20 years gave us the house room to absorb this army without overcrowding, and that our householders accepted this invasion of their cherished privacy with tolerance and good will.

* Address at a Special Session on "Meeting the Public Health Emergency in Great Britain" of the American Public Health Association at the Seventieth Annual Meeting in Atlantic City, N. J., October 16, 1941.

All this took a great deal of organization and, on the whole, the machine worked with commendable smoothness. But think what it meant to the health services! Maternity and child welfare workers, school doctors, dentists and nurses had to follow the families to the reception areas. Schools, hospitals, clinics, and other premises were insufficient to cope with the great additions to the local populations, so new premises had to be provided. Staffs were hard to find. Difficulties, which in the past had appeared small and easy to deal with, were magnified. Many of the town children were discovered to have lousy heads in spite of the efforts that had been made to free them from vermin. This had to be dealt with promptly in rural areas where facilities for cleansing were not so readily available. Bedwetting in unaccompanied young children became a problem of first-rate consequence. Scabies increased greatly in incidence. Difficult children—a term which covers a multitude of conditions—required special measures for their management. And all this happened in quiet, peaceful areas where prior to the war little thought had been given to such matters. Yet they have been dealt with. Treatment centers have been established, psychiatric social workers have been appointed, welfare workers have helped with billeting difficulties, and gradually the great experiment of turning the city dweller into a village resident is proving successful. And was not such an experiment well worth all the trouble we have had?

The congestion in the cities of Great Britain has been the cause of all sorts of social evils, and if we can get even a small proportion of our people to return to the land whence most of them originally came we shall have done well. Large numbers of emergency maternity homes have been established up and down the country in safe areas where normal confinements have been conducted with the best possible results. Expectant mothers are billeted near these homes for a few weeks prior to their confinement, and attempts are made, not always with success, to keep the mothers and their infants in the country for some time afterward. We hope many of these country maternity homes will remain as permanent institutions. Then there are hundreds of wartime residential nurseries for children under 5. While no one wishes to see very young children separated from their parents for long periods of time, we think we may be able to retain many of these nurseries as convalescent homes to which children may be sent, in happier days, from our child welfare centers. So far as the value of evacuation schemes is concerned, the main argument in favor of removal of selected groups from target towns lies in the fact that the age group 5–15 years—which has contributed a much higher proportion of evacuees than any other—has shown much the lowest death rate from "enemy action."

In addition to the official schemes for the mass movement of selected persons, there has been of course a great deal of unofficial movement of people from one area to another. There has, too, been the recruitment of millions of men and women into the fighting services, many of whom have been billeted in various parts of the country. Finally great numbers of men and women have had to be taken from their homes to work in the factories that are everywhere being developed. All these comings and goings of the people have destroyed home life. No one's home is his own—he is either living in some other person's home or sharing his own with total strangers. It requires little imagination to conjure up the possible complications of such a state of affairs, and yet we have endured two years of the war without any obvious deterioration of health—and, it is hardly necessary to add,

with an increasing determination to see this business through to the end. In making evacuation a success the health officer and his staff have played a leading, if unaccustomed, part.

In order to deal promptly and efficiently with air raid casualties and with cases of illness in the services and in evacuated persons, emergency medical, hospital, and laboratory services had to be established. A great deal of additional hospital accommodation was provided by adapting and equipping existing buildings and by erecting hospital huts in the grounds of existing institutions. It is estimated that we have some 400,000 hospital beds in England and Wales available within the Emergency Scheme. So far as possible, additions to hospitals have been made with an eye to their future use in times of peace. The plan that has been developed of transferring much of the hospital accommodation from the center of our towns to situations in the country is one that many of us would like to see a permanent feature of hospital reorganization. Some of our hospitals have been so damaged that they will have to be rebuilt. It would be folly to rebuild them on crowded and unnecessarily expensive sites. With modern means of transport it is possible to move patients in comfort considerable distances, and I for one look forward with confidence to some redistribution of our hospitals in the years to come.

It was thought necessary at first to keep large numbers of beds empty and staff standing by, ready for the reception of casualties of all kinds. Experience so far has shown that we overestimated the need for such a big reserve. The result has been that these hospital beds have been used more and more for civilian sick and we are rapidly getting something in the nature of a national hospital service—without our being fully aware of the change that is taking place. As these hospitals are grouped and administered, for wartime purposes, in regions, we are coming to the belief that the proper method of providing adequate hospital services for the benefit of the public is on a big regional basis, and already schemes are being discussed for future hospital provision on these lines. As our counties and cities own many large hospitals, medical officers of health are of necessity intimately concerned with such proposals and are helping to solve the problem of so coördinating the work of both voluntary and municipal hospitals that the public will get the best possible service.

We very naturally dreaded the appearance of serious epidemic disease in the unusual conditions in which people were living, and in order to assist early diagnosis we established a system, under the management of the Medical Research Council, of emergency public health laboratories covering the whole country. Some of these laboratories were new creations; others, which had been in existence for years, were brought into the scheme. As a result every medical officer of health has now a first class laboratory within a maximum radius of 30 miles. Not only does the laboratory do all the bench work needed, but the staff go out and help with the field work. This is in the best tradition of your own admirable United States Public Health Service, and it will be a great disappointment to me if we do not retain these indispensable epidemiological units after the war.

I am delighted to tell you that the most complete of all these units at our disposal is the American Red Cross Harvard Field Hospital Unit under the direction of our mutual and respected friend Dr. John Gordon, Professor of Preventive Medicine in the Harvard Medical School. This unit not only provides us with some 130 beds in novel and efficient prefabricated buildings; it gives us as well a first class laboratory and mobile epidemiological teams of

doctors and nurses. Already we have used these teams in various parts of England and it is of interest, though I really do not know why we should have imagined otherwise, that such a team, immediately on arrival in England and without spending any time on local introductions, can set about the difficult task of case finding and follow-up in a typically British town. In so doing I am assured that they feel just as much at home and meet with just as much success as they would in their own part of the world. Dr. Gordon has been appointed official U. S. A. Liaison Medical Officer with the Ministry of Health and his advice and help are being constantly sought. Public health in America could have made no more valuable contribution to our war effort than by sending us this admirable unit. I hope to see much of its practice embodied subsequently in our own epidemiological plan.

One of our fears was that, with the inevitable damage to water mains and sewers by bombing attacks, there would be a great increase in the incidence of typhoid fever. Happily this fear has not been realized. In London, for instance, every type of water main has been broken in every conceivable manner. Sewers have emptied their contents into large trunk mains and polluted the water over great distances. One main, 4 feet in diameter, has been broken no fewer than eleven times, and the number of times mains have been damaged amounts to thousands. This is understandable when we recollect that the system of mains in London is over 8,000 miles in length. The disinfection of mains under repair by means of chlorine, in a strength of 10 p.p.m. and with a period of contact of 15 minutes, has, however, proved an excellent safeguard, and I am happy to say that neither in London nor elsewhere has there been any outbreak of typhoid fever due to damage to mains and sewers as a result of air raids. On the other hand, we have had quite a number of epidemics of paratyphoid fever traceable in a majority of instances to infection associated with premises where bread and various kinds of pastries are made.

The war has helped us to make real progress with our scheme for the immunization of children against diphtheria. Last November the Government decided to issue supplies of alum precipitated toxoid free to all health authorities and this provided the necessary official backing and stimulus for the movement. I cannot give you the figures of the numbers immunized so far—we have called for returns up to the 30th September—but we have evidence that a great deal has been accomplished in the past eight or nine months. We are finding difficulty, of course, in bringing in the children below school age in sufficiently large numbers, but we hope that with continued publicity even this trouble will be overcome.

In addition to devising a hospital and laboratory system to meet our anticipated needs we had, of course, to work out a whole scheme of air-raid precautions—or, as we now know it, A.R.P. This meant the creation of first aid or stretcher parties who travel at once to the scene of what is called "an incident" and assist in finding casualties and in applying the necessary first aid treatment. First aid posts had to be established, to which the less severely injured are directed. Ambulance services had to be built up, air-raid shelters had to be provided, and cleansing centers for decontaminating persons affected by mustard gas had to be planned. In addition rest centers for bombed-out persons had to be found and equipped, and there are now some 13,000 of these in Great Britain with accommodation for over a million people. A large staff had to be assembled and trained and retrained in the light of new knowledge

and experience, and in all of this the medical officer of health was heavily involved. Indeed, it is this work that has occupied by far the greater part of his time in certain areas.

The air-raid shelter problem has been one of no little difficulty. Domestic shelters and street surface shelters had been prepared against the onset of raids, but when night bombing began a year ago the public took the law into their own hands and invaded deep "tube" stations and other underground spaces where they felt themselves to be in greater security. These places had not been prepared as dormitories, and sanitary and other arrangements were sadly lacking. Soon, however, provision was made for proper equipment and supervision. Large numbers of shelters have been fitted with bunks; water flushed toilets have been installed where possible; medical aid posts have been established in all large shelters with doctors and nurses in attendance—incidentally much health education work is carried on and many children have been immunized against diphtheria in these shelters; canteens are available and entertainments of various kinds provided. And now it is right to say that reasonable shelter provision has been made for a very large mass of the people. For example, by last April the total capacity of public and domestic shelters in the county of London amounted to 2½ million persons. A census taken on the 7th of April showed that some 23 per cent of the people spent the night either in public shelters or in privately provided domestic shelters—about 8 per cent being in public shelters including the deep "tube" stations. The rest of the people just stayed in their own homes or else used shelters provided by private means. It is of interest that we have had no epidemic disease associated in particular with shelter users nor has the incidence of vermin among such persons increased.

THE INDUSTRIAL WORKER

So far this war has been for us a war in which industrial workers have played an almost larger part than the members of the fighting services. It is fitting therefore that I should say something of the conditions under which industry is being carried on and of the health of the persons employed. One of the penalties of a democracy appears to be that it takes a long time to get into its proper stride. This was so in Great Britain but the pace has been steadily increased and a gigantic effort is now being made. There have been many difficulties to overcome. New factories have had to be built, often in remote parts of the country. Workers have had to be drafted to them, and living accommodation found or provided for them in the neighborhood, or special means of transport to and from their homes arranged. Many workers have joined the Services, so new entrants to industry have had to be trained, and women in large numbers are taking the place of men. All factories have to be blacked out as a precautionary measure against air raids—this raises problems of lighting and ventilation. Bombing attacks may be made while people are going to or leaving their work. Shopping for the family becomes very difficult when the womenfolk are employed in factories. Young children must be cared for while the mothers are at work, so wartime day nurseries are being everywhere established—often with the generous help of American well-wishers. Special arrangements have to be made for medical care and welfare work in the new factory areas.

After the evacuation of Dunkirk and the collapse of France in May, 1940, a tremendous effort was put forth by industry. Longer and longer hours were worked, and it is interesting to record that in many factories there was actually a higher hourly output of work at the

same time. This, however, as we knew from experience, could not last, and gradually output began to fall as a result of strain and fatigue. Time began to be lost through sickness and injury and workers became stale. Had the long hours continued there would undoubtedly have been a serious effect on health and efficiency. So a reduction of hours was introduced and some provision was made for holidays. It is true to say that there is little to gain and probably more to lose when the weekly hours of work exceed 60–65 for men and 55–60 for women.

In spite of what our people have been through, I am glad to have the assurance of the Senior Medical Inspector of Factories that he finds no evidence that in general the health of the industrial worker has suffered materially. War conditions have, of course, resulted in the increase of certain industrial poisonings. The most noteworthy increases are associated with the processes involved in the manufacture of T.N.T. and are revealed in aniline poisoning, toxic jaundice, and in poisoning from nitrous fumes. There is, too, a higher incidence of poisoning from carbon monoxide owing to the greater use of blast and other furnaces in the making of munitions. In order to safeguard the health of factory workers the Minister of Labour has issued an order making compulsory, when thought necessary, medical supervision and nursing and welfare services in any factory concerned with the manufacture of munitions of war. In consequence, well over 100 full-time and nearly 400 part-time doctors have been appointed in munition factories as well as very large numbers of nurses. Welfare work too is spreading rapidly both within, and in the districts surrounding, factories. It is satisfactory that many factory owners who originally accepted such supervision with great reluctance have later expressed their appreciation of its practical value. We hope this increase in medical care and in welfare work in factories will become a permanent part of our industrial organization.

Before I leave the subject of industry, may I quote a few words from a report by the Senior Medical Inspector of Factories? Speaking of women he says,

> Of their keenness to do what they are required to do I have nothing to add to what is general knowledge, and, so far as it is possible to judge, the work upon which they are employed is well within their capacity. The idea that the ordinary conditions of work must be improved because women are to be employed is, I consider, unsound. In general, if the conditions are unsuitable for women they are equally unsuitable for men. It is true that some types of work are of themselves unsuitable for women but that is an entirely different matter. At present there is work that has to be done that is a hazard to health and to life, both to men and to women, whatever precautions may be taken. The women, I believe, are willing to share this risk with the men.

SPIRIT OF THE CIVIL POPULATION

You may ask how the civil population have stood up to the frightfulness they have had to endure. I may say right away that their spirit has been splendid and that, if anything, the women are even stouter-hearted than the men. As regards neurotic illnesses, here are the conclusions reached in a quite recent report to the Medical Research Council:

> Air raids have not been responsible for any striking increase in neurotic illness. Crude figures from hospitals and outpatient clinics even suggest a considerable drop.
>
> Reliable data from London and Bristol, and the impressions of good medical observers, indicate that after intensive raids there is a slight rise in the total amount of neurotic illness in the affected area, occurring chiefly in those who have been neurotically ill before. Neurotic reactions may not show themselves for a week or ten days after the bombing; they usually clear up readily with rest and mild sedatives. Hysteria is uncommon, anxiety and depression are the commonest forms of upset.
>
> The incidence of neurotic illness has been low in fire-fighters and other workers in Civil Defence.

Insanity has not increased, so far as figures are to hand, though more persons with senile deterioration have been admitted to mental institutions than before, because their relatives could not any longer look after them or the raids had in other ways disturbed their routine and their precarious adaptation. The same was true of some defectives.

Suicide has diminished both in England and in Scotland.

It is impossible to distinguish between neurotic illness due directly to air raids and that which may follow such secondary troubles as disruption and loss of one's home, evacuation, difficulties in transport to and from work, or temporary loss of employment. It is to the war as a whole, with its accumulated stresses, that people have had to adjust themselves, and signs of failure to do this can be taken as warning signals of neurosis. An increase in alcoholism would be such a sign: there is no evidence that there has been any increase of this sort. The rise in road and industrial accidents has been considerable: many causes are at work, the psychological ones among which have not been analysed. There has similarly been a rise in juvenile delinquency: this cannot be regarded as tantamount to a rise in juvenile neurosis, but it suggests that the same environmental factors are at work as conduce to neurosis.

FOOD RESTRICTIONS

And now a few words about rationing and how the people are faring in spite of some food restrictions. Only certain foods are rationed; these are meat, bacon, margarine, lard or cooking fats, cheese, tea, sugar, and jam. We have to register for milk and certain categories of the population are given priorities for milk, viz: expectant and nursing mothers and children up to the age of 18. Adults get what is left over, while persons suffering from certain kinds of illness have special privileges. Under the National Milk Scheme, mothers and children under 5 may obtain a pint of milk a day at a price of just over three cents or, if need be, free. School children, under the Milk in Schools Scheme, may purchase, or be given without charge, in school, two-thirds of a pint daily at a cost of less than one cent for one-third of a pint. These school children, together with young persons between the ages of 14 and 18, may have delivered to their homes an additional half-pint of milk a day at the ordinary retail price (at present about seven cents a pint). During this year more than 3 million persons have benefited under the National Milk Scheme—276,000 expectant mothers, 73,000 infants under 1 year, and 2,700,000 children aged 1 to 5. In addition, 2¾ million children are getting milk under the Milk in Schools Scheme.

A national wheatmeal loaf, made from 85 per cent extraction flour, is marketed at the same price as white bread, and the medical profession has always urged that it should be made the standard issue for the country. It has, however, been decided as a matter of policy that both types of loaf should be available, but that white flour should be enriched by the addition of thiamin. Vitamins A and D are added to all margarine, and preparations containing vitamins A, C, and D are available for all expectant and nursing mothers and for young children.

A careful survey of the diets of 103 London families made in the spring of this year showed interesting results (Table 1).

The fact is that for a beleaguered citadel we are being very well fed indeed. There are difficulties in the distribution of foodstuffs. In some districts shopping is a much more troublesome business than in others. But sufficient food is either being produced in or is being brought into Great Britain to keep us all in good heart and fit for a pretty heavy day's work. The best way of overcoming distribution difficulties is, we think, by extending communal feeding. One of our aims is to provide as many children as possible with a midday meal in school—I believe this will become a permanent part of our educational program. At present about 6 per cent of our school children are having

TABLE 1

Consumption of Nutrients per Diet Head Daily

Food Expenditure per Diet Head Weekly	*Calories*	*Protein*	*Carbohydrate*	*Fat*	*Calcium*	*Iron*	*Vitamins I.U.*		
		g.	g.	g.	g.	mg.	A	B_1	C
Under 5/— (A)	1,740	49	248	57	0.37	7.5	2,341	258	758
5/ to 7/— (B)	2,090	59	280	75	0.51	9.3	2,675	326	953
7/— to 9/6 (C)	2,405	70	303	94	0.60	12.0	3,646	403	1,046
Over 9/6 (D)	2,747	79	352	105	0.77	12.1	3,847	452	1,254

Actual Intake Expressed as Percentage of Requirements Based on League of Nations Standards

Food Expenditure per Diet Head Weekly	*Calories*	*Protein*	*Calcium*	*Iron*	*Vitamins*		
					A	B_1	C
Under 5/— (A)	80	80	34	75	79	98	128
5/— to 7/—(B)	91	95	48	95	90	125	162
7/— to 9/6 (C)	105	110	56	117	124	154	180
Over 9/6 (D)	120	128	77	124	130	173	216

a school dinner. The numbers are increasing rapidly and we hope during this winter to feed many more. Canteens for factory workers, miners, dockworkers, and building operatives are springing up everywhere. Nearly all the factories in which we can require the establishment of canteens serving hot meals have already made, or will shortly have made, such provision. British restaurants, financed by Government, where the whole family may get a good meal at a cheap rate already number over 1,000—another 400 will soon be opened. All these arrangements tend to make possible the eating of one square meal a day and enable the women of a household to enter industry without the worry of knowing how their families are to be fed. Of course, it is not easy to get together the equipment needed for communal feeding on such a vast scale, but it is being done with all possible speed. The old idea that an Englishman's house was his castle behind the walls of which he secured himself against all comers is no longer true. He has to share his castle with any person who may be officially billeted on him and, more than that, he may no longer eat his roast beef before his own fireside. If he wants a good meal at a cost within his means he may have to collect his bowler hat and his umbrella and betake himself to some communal feeding center. We are becoming a very different people from the race Continental caricaturists poked fun at for so many years.

ASSESSMENT OF NUTRITION

It is not sufficient to make dietary surveys and to calculate the calorie and other values of the food eaten. We must make as best we can some kind of actual assessment of nutrition in groups of the population in various parts of the country. The method of clinical assessment originally advocated by the Board of Education in respect of school children is much too dependent upon the whims and fancies of individual investigators. Some more accurate method must be used. We have a group of nutritionists at Oxford who are trying to elaborate the necessary technic which must, I think, be a combination of dietary survey, laboratory control, and clinical examination. In this connection we are getting much help from The Rockefeller Foundation and I hope that before long we shall be able to send teams of trained workers to selected areas to search for the early and so far

elusive signs of nutritional deficiencies. Up to the present I think I can say that with the means at our disposal we have not been able to find evidence that our people are suffering in any degree from malnutrition. I should be foolish, however, to feel easy in my mind as to the future. The margin of safety we possess must be very small.

A great deal of food educational work has been going on. The Ministry of Food and the Board of Education have taken a prominent part in this, and I cannot speak too highly of the way in which the teachers of domestic subjects have gone out into the homes and the market places to give instruction to the public. Large new groups of people are becoming to some extent social workers and I have no doubt the experience will be of permanent benefit to them. Indeed, the whole of our health educational program has been stimulated by the war.

TRAINED MAN POWER

To keep all these wartime activities moving and to maintain existing services at as high a pitch of efficiency as possible has made enormous demands on our trained man power—and nowhere more than in the case of doctors, dentists, nurses, and other officials of our health and medical departments. We have had endless difficulties over doctors and at the present moment we have a committee of well known medical men drawn from civil practice and from the Services actively engaged in trying to secure a better utilization of our diminishing resources. Indeed, members of the committee are travelling about the country in an endeavor to see for themselves whether Service and civilian needs cannot be pooled and dealt with by a single medical staff, and whether reductions in what are considered minimum establishments cannot still be made. It is no easy matter to provide medical officers for our fighting services and for all the special kinds of work connected with first aid, shelters, emergency hospitals, and the like thrown up by the war—in addition to retaining enough doctors to care for the civil population. Large numbers of women are joining the Civil Nursing Reserve and being given some training in nursing, but the competition of the uniformed women's services and of industry is very strong. Casualty work, of course, has its slack as well as its busy periods, and it is hard to determine what is exactly the insurance we should provide in the way of trained personnel standing by to meet any sudden emergency.

I began by saying I would try to show you how the work of the medical officer of health had been affected by the war. I should like to close by saying that our health services have stood up well to the additional tasks placed upon them. Normal services have continued to function. Infectious disease during the war has, fortunately, been no more than average. We must, however, keep always in mind the possibility that we may be living on the resources we have built up over a period of years. The increase in the incidence of tuberculosis, with the heaviest mortality falling on the female age group 15–25, gives us concern and we are trying to determine the possible causes of this increase. We must ever be on the watch for these unfavorable trends.

We may have been slow to realize that war in Europe was inevitable and slow to appreciate the magnitude of the issues even once the battle had been joined. There is now no misunderstanding of the situation. Every man and every woman knows that if this war is to be won it can be won only by each one putting forth the greatest effort of which he is capable. This is what we are approaching now. Those of us who are in some measure responsible for the planning of things are constantly looking to the future and endeavoring so

to meet the present emergency as to derive some permanent good from the measures we adopt. For war, though a great destroyer of things worth preserving, may yet almost overnight open the door to progress and reform that in peacetime would have meant years of constant striving.

Nutrition in Relation to Pregnancy and Lactation*

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THERE is no longer any doubt that fertility and nutritive efficiency are intimately related. One of the criteria of dietary adequacy employed generally by students of nutrition is the ability of animals to reproduce and rear young successfully throughout succeeding generations. Stock raisers and animal husbandrymen have long appreciated the value of providing their breeding animals with a food allowance of superior quality. The practice in the highlands of Scotland of supplementing the food of the sheep just before the period of the annual estrus is said to increase materially the fertility of the flocks.

Though it has been recognized for many years that extreme poverty of diet or the extreme deprivations of war or famine affects both fertility and birth weight in humans, the effects of specific dietary deficiencies and of suboptimal nutrition on pregnancy and lactation in women have only recently received intensive study. The abundance of evidence obtained from animal experimentation, the marked improvements in experimental and clinical technics, and the ever widening interest in nutrition have stimulated a keen desire for exact information on the rôle of diet in human reproduction and lactation. For the worker in the field of public health such information is of paramount importance.

A comprehensive review of the dietary requirements in pregnancy and lactation was prepared by Garry and Stiven [1] in 1936. More recently, after a critical study of the literature, the

TABLE 1

Recommended Daily Allowances for Specific Nutrients

Committee on Food and Nutrition, National Research Council

	Calories	*Protein*	*Calcium*	*Iron*	*Vitamin A*	*Thiamin (B_1)*	*Ribo-flavin*	*Nicotinic Acid*	*Ascorbic Acid*	*Vitamin D*
		gm.	gm.	mg.	I.U.	mg.	mg.	mg.	mg.	I.U.
Pregnancy latter half	2,500	85	1.5	15	6,000	1.8	2.5	18.0	100	400–800
Lactation	3,000	100	2.0	15	8,000	2.3	3.0	23.0	150	400–800

* Read before the Food and Nutrition and Maternal and Child Health Sections and the Oral Health Group of the American Public Health Association at the Seventieth Annual Meeting in Atlantic City, N. J., October 17, 1941.

Committee on Food and Nutrition of the National Research Council has set up dietary allowances for people of different ages.[2] Since the purpose of this paper is to set forth in review the present-day knowledge of nutrition in relation to pregnancy and lactation, it seems profitable to consider in some detail the allowances set up by this committee, which are presented in Table 1.

ENERGY NEEDS OF THE PREGNANT WOMAN

Let us first consider the energy needs of the pregnant woman. The consensus among investigators is that there is a decrease in heat production in early pregnancy. After the third or fourth month there is a steady rise. Shortly before delivery the basal metabolic rate may be increased by as much as 25 per cent, but curtailment of activity at this period offsets this increased basal.

Obstetricians generally agree that pregnancy should involve a gain of no more than 20 to 25 pounds. Studies of Stander and Pastore,[3] however, indicate that normal pregnant women experience gains proportionate to their original size. A daily intake of about 2,500 to 2,800 calories readily meets the total energy needs of the average pregnant woman. Under continuing observation, bearing in mind relative as well as absolute increase, and rapidity as well as amount of gain, adjustments to meet individual needs may be made without detailed calculations.

The rapid weight gains associated with toxemias of pregnancy cannot be attributed to overeating. Such weight increase is of sudden and rapid onset and is pathological in contrast to the more gradual weight gains that characterize uncomplicated pregnancy.

Rarely, for the very obese pregnant woman, a low calorie diet may be necessary. In such cases *calories only* should be limited and the same amounts of protein, minerals, and vitamins must be provided as are recommended for the woman of normal weight. This involves special dietary calculations. Effort to limit the size of the fetus by restricting the food intake is rarely effective. Furthermore, it carries the serious risk of inducing nutritional deficiencies in both mother and child.

The recommendations of the Committee on Food and Nutrition do not indicate what proportion of the total calories should be derived from carbohydrate and fat. It is probable that the levels of these foodstuffs that have long been considered as desirable in the diet for the non-pregnant adults are likewise to be employed in pregnancy, *i.e.*, 50–70 per cent of the total calories from carbohydrate and 20–35 per cent from fat. References in the literature allude to a tendency toward lowered glucose tolerance and glycosuria and increased accumulation of acetone bodies and tendency toward ketone acidosis as concomitants of pregnancy.[4] However, such tendencies are not pronounced enough to justify any radical change in the carbohydrate and fat content of diets for normal pregnant women.

PROTEIN INTAKE DURING PREGNANCY

The idea prevails quite generally that excess of protein exerts a harmful effect in human pregnancy. Not infrequently the toxemias of pregnancy are attributed to the too liberal consumption of meat. In consequence, many practising obstetricians advocate some restriction of meat ingestion. On the other hand, Strauss[5] asserts that a diet low in protein may be a cause of pregnancy toxemias, and reports clinical cases successfully treated by a high protein diet supplemented by thiamin and liver.

It has been reliably reported that total net nitrogen requirement, over maintenance requirement, during pregnancy is about 135–145 gm. In addition, the maternal organism tends to store nitrogen far in excess of this

theoretical requirement. Macy and her coworkers [6] have called attention to the fact that in women the greater the retention of nitrogen in the latter part of pregnancy, the greater the likelihood of a sufficient milk supply. Thus, in the light of present-day knowledge and experience a generous rather than a restricted protein intake is to be recommended.

MINERAL REQUIREMENTS

Experimental evidence indicates that thirteen or more mineral elements are essential for human nutrition. Calcium, phosphorus, iron, and iodine have been studied the most extensively, and it is believed now that if these are provided in sufficient amounts in the daily diet the other nine or so will be present in satisfactory amounts. Actually, since phosphorus is an almost invariable constituent of protein, a sufficiency of the latter is a guarantee of an adequacy of the former. Except in regions of endemic goiter, iodine need receive no special consideration. In such areas the use of iodized salt is usually advocated.

That pregnancy exerts a drain on the calcium and phosphorus supplies of the mother is a demonstrated fact. Experiments on farm animals indicate that both of these elements are necessary for normal fertility and the birth of normal young. According to evidence cited by Maxwell and Miles [7] infants born of mothers with osteomalacia usually are osteoporotic and later develop rickets. True fetal rickets may also occur, accompanied by gross hypoplasia of the enamel of the teeth and defective dentine formation. Evidence of a similar nature has been obtained by a number of other investigators. In a recent study, Burke [8] has noted that 11 children with perfect teeth at 6½ years of age were the offspring of mothers whose daily diets during pregnancy included at least one quart of milk, in contrast to a group of 12 children with the largest number of defective deciduous teeth at 3 years of age whose mothers' diets included 1 pint of milk or less per day.

Studies have shown that the calcium content of the fetus at term is about 25 gm. Authorities generally agree that 0.68 gm. of calcium a day meets the needs of the normal adult. To avoid robbing the tissues of the mother and to assure storage, an ample excess over these combined requirements should be provided. In view of these facts and in consideration of evidence afforded by balance studies during pregnancy, it is safe to assume that the suggested allowance of 1.5 gm. of calcium per day suffices.

Attention should also be directed to the fact that there is some evidence that the calcium and phosphorus from milk is better than from other foods and that it is difficult, if not practically impossible, to supply in other foods amounts equivalent to what can readily be supplied in milk. Calcium in the form of its salts is not as effectively utilized as the calcium of milk, and at usual retail drugstore prices costs more than the same amount acquired from milk. Furthermore, when given in this form none of the additional nutritional value of milk is obtained.

It has long been recognized that the human infant and the young of other mammals at birth are supplied with a store of iron sufficient to carry them through the early months of life. Since the maternal organism supplies this iron, as well as that needed for the growth of the fetus, it is only logical that iron requirements are increased in pregnancy.

The drain upon the mother to supply the needs of the fetus, together with the rather frequent occurrence of pregnancy of gastric hypo-acidity, and the use of diets often inadequate in iron, may account for much of the anemia

so common in pregnancy. In substantiation of this is the observation of Wills [9] that there is a greater incidence of low hemoglobin values in pregnant women on low incomes, and that the blood hemoglobin level can be maintained at satisfactory levels from the fifth month to the end of pregnancy by the administration of iron. Similar evidence is offered by Corrigan and Strauss [10] who showed that the blood of apparently normal pregnant women can be considerably improved by supplementation with iron. Burke [11] cites the case of a woman whose diet was carefully followed through three pregnancies. She states:

> When first seen she consumed a diet rated "fair" in iron. This was toward the end of the second trimester of the first pregnancy. She had improved her iron intake to "good" during the latter part of the first pregnancy. In the second pregnancy she took a diet rated "good to excellent" in iron and had iron medication from the 6th month to the end of that period. In her third pregnancy she received no iron medication but had taken a diet "excellent" in food iron throughout this third pregnancy, using such foods as liver, apricots, molasses, lean meat, leafy greens, whole grain bread and cereal, etc., liberally. In each pregnancy she showed a higher hemoglobin level than at the previous pregnancy.

Improvement of the hemoglobin levels of the three children in the first 6 months of infancy paralleled that of the mother during her successive pregnancies.

In arriving at an adequate iron intake for the pregnant woman as in the consideration of all other dietary essentials, the factors of availability, absorbability, and interrelationships must be recognized. There is general agreement that iron to be absorbable must be soluble, ionizable, and ultrafilterable. Such forms are reduced iron, salts soluble in acid solution, and the hydroxides of iron, which are readily changed to salts by acids. Also ferric iron becomes available only when hydrochloric acid is present in the stomach, since in achlorhydria anemia occurs. Thus, as cited by McCollum, Orent-Keiles, and Day,[12] of the estimated iron in dry pork liver, 67 per cent is available; of that in dry oysters, 22 per cent is available; while of that in egg, molasses, raw carrots, apples, peaches, pears, 100 per cent is available.

A nutritional anemia can be produced by a diet inadequate in the quality or quantity of its protein. Anemia also develops on a diet deficient in vitamin A or ascorbic acid or one where the calcium:phosphorus ratio is unfavorable. It has been estimated that the iron contribution of the mother during pregnancy is 400 to 600 mg. and that the diet of the pregnant woman should provide for the absorption and utilization of 500 mg. of additional iron. A daily intake of 15 mg. of iron is thought to meet these demands. Practically speaking, a diet selected to meet the needs for protein and the various vitamins usually provides more than 15 mg. of iron. If, in spite of the above precautions, anemia exists, an iron supplement may be imperative.

Metabolism studies indicate that in pregnant women the sodium balance is usually positive and more than adequate for fetal needs. Because there is a definite relationship between the amount of salt eaten and the water retained by the body and because in pregnancy the tissues show a marked avidity for water, many obstetricians advocate the curtailment of salt intake. It is a judicious practice to restrict the use of salt to that amount used in cooking and to prohibit the use of additional salt at the table, with more stringent restriction in the event that rapid weight gain or other evidence of water retention appears.

FLUID INTAKE

Obstetricians generally indorse an ample fluid intake during pregnancy.

If for no other reason than overcoming urinary stasis incident to the loss of tone of bladder and ureters during pregnancy, fluids are important. The dictum of a liberal fluid intake often loses emphasis by its very generality. About two quarts of liquids daily are recommended. The daily use of one quart of milk, already alluded to, will furnish half of the fluid and the other half can be most acceptably provided by water, soup, fruit juices, and beverages.

VITAMIN REQUIREMENTS

In the recommended daily allowances, estimates are given only for vitamins A and D and thiamin, riboflavin, nicotinic and ascorbic acids. The committee [2] states:

> In addition to the three factors of the B complex included, other members of the group, such as vitamin B_6 and pantothenic acid should be given consideration. But at the present time no specific values can be given for the amount required in the human dietary. It should be added, however, that foods supplying an adequate amount of thiamin, riboflavin and nicotinic acid will tend to supply an adequate amount of the remaining B vitamins.

It is safe to assume that a diet deriving the aforementioned essentials from *natural food sources* will provide adequate amounts of the less well known factors.

The suggested allowance for vitamin A represents an increase of 20 per cent above that for the average adult. This estimate is based chiefly upon clinical tests on non-pregnant adults. Experimental investigations and observations on humans have demonstrated that the chief function of vitamin A is the preservation of the integrity of epithelial membranes. Probably as a result of the protection of these membranes, vitamin A serves indirectly to lessen susceptibility to infection, especially of the respiratory and genitourinary tracts. Garry and Stiven [1] cite several references to the beneficial effects of concentrates of vitamins A and D in reducing the tendency to puerperal sepsis. Vitamin A deficiency in animals results in disturbance in the estrus cycle in females, prolonged gestation, and fetal death. In males, testicular degeneration occurs which can be alleviated by the subsequent administration of vitamin A. Inclusion in the daily diet of whole milk, butter or fortified margarine, eggs, green, leafy, and yellow vegetables insures a vitamin A intake considerably in excess of that advocated by the Committee on Foods and Nutrition of the National Research Council.

There is an extensive literature on the rôle of thiamin in pregnancy. Some of the abnormalities described in experimental animals are undoubtedly due to multiple deficiencies, but it is an established fact that animals, and probably humans, on thiamin-deficient diets give birth to young which shortly after birth exhibit symptoms characteristic of polyneuritis. The increased demands of pregnancy, too, are frequently sufficient to produce symptoms of thiamin deficiency in pregnant animals on diets on which non-pregnant animals show no visible signs of polyneuritis.

In recent years there has been a growing belief that some of the pathologic conditions developing during pregnancy are manifestations of deficiency of one or more of the constituents of the B complex. Polyneuritis of pregnancy is undoubtedly a dietary deficiency similar to beriberi, and therapy should aim at provision of the deficient nutrients, especially the vitamin B complex. Marked improvement or disappearance of the polyneuritic manifestations occurs in many cases following thiamin treatment.

As stated by McCollum, Orent-Keiles and Day [12]:

The polyneuritis of pregnancy would seem to have its origin in several causes or associated factors, among which are anorexia and vomiting of pregnancy. Plass and Mengert have pointed out that in the forcing of high carbohydrate diets on patients with vomiting or pregnancy there would seem to be increased risk of producing vitamin deficiencies. Depletion of thiamin, of course, might be expected, since carbohydrate foods tend to increase the requirements for this nutrient.

Because of the increased need for thiamin, and especially because of its rather limited distribution in common foods, it is of paramount importance that whole grain breads, whole grain cereals, lean meat, eggs, peas, beans, lentils and other vegetables and fruits are accorded a conspicuous place in the diet of the pregnant woman.

Recently both riboflavin and nicotinic acid have been shown to have specific rôles in human nutrition. It is known that the former is effective in the prevention and cure of a specific keratitis and lesions at the angles of the mouth and nose. Nicotinic acid is frequently called the antipellagra factor because its absence or inadequacy is the chief, but probably not the only, factor involved in the causation of human pellagra. Reliable data for the absolute amounts of riboflavin and nicotinic acid required for normal nutrition are lacking at this time. However, the provision of protein and thiamin in sufficient amounts and from natural sources give assurance of adequate quantities of riboflavin, nicotinic acid, and the other constituents of the B-complex.

Increase in metabolic rate is invariably accompanied by a need for increased amounts of ascorbic acid. There is an increased metabolic rate after the first trimester of pregnancy and it has been established beyond a doubt that pregnant and lactating women need considerably more ascorbic acid than do non-pregnant adults. Neuweiler [13] has described ascorbic acid excretion studies on non-pregnant, pregnant, and lactating women which he conducted in order to estimate the requirements during pregnancy and lactation. He found it was necessary for the pregnant and lactating women to ingest considerably larger amounts of the vitamin in order to maintain an excretion level regarded as indicative of adequate vitamin intake. The studies of Teel and coworkers [14, 15] corroborate the findings of Neuweiler. The daily consumption of citrus fruits, tomatoes, and other raw fruits and vegetables will provide in palatable form the necessary ascorbic acid.

It is generally agreed that vitamin D is needed throughout life, the requirement being greatest during infancy and during pregnancy and lactation. The main function of this vitamin is its rather spectacular regulation of calcium and phosphorus metabolism. When it is present in optimum amount it brings about the maximal utilization of these two minerals. It is a vital factor in the prevention and cure of rickets and in the maintenance of a sound skelital structure throughout life. It undoubtedly plays an important rôle in the building of sound, caries-resistant teeth. If it performed no other functions than those enumerated its inclusion in the diets of pregnant and lactating women is essential.

Unlike the other dietary essentials, vitamin D is not widely distributed in natural foods. Indeed, it is the one factor that one must obtain from sources other than the food supply. Fish liver oils are commonly employed to supply this vitamin. In the Temperate Zone it is customary to prescribe a vitamin D supplement from October through April.

The rôle of vitamin E in the prevention of sterility in rats, cows, sows, and other animals, and as a factor of importance to the hatchability of hen's

eggs has been demonstrated. Some clinical reports have appeared which suggest that wheat germ oil, a rich source of vitamin E, is of value in preventing spontaneous abortions in women. Satisfactory controls are lacking as is so often the case in human nutrition studies. The distribution of vitamin E is such that a diet containing insufficient amounts would no doubt also lack other factors essential for a successful pregnancy. Where its administration in large amounts has proved effective in combating spontaneous abortion one wonders whether some metabolic perversion exists necessitating an intake so much greater than that which is considered normal.

There is as yet no generally accepted unit of vitamin E. The Committee on Food and Nutrition of the National Research Council have set up no allowances probably because of insufficient evidence of its rôle in human nutrition and the lack of a satisfactory unit of measurement and methods of assay.

No allowances have been set up for vitamin K as yet. However, its place in human nutrition has been definitely established. It is essential for the maintenance of a normal plasma prothrombin level and is an important factor in regulating the clotting time of the blood. Although a diet of natural foods seems to provide sufficient vitamin K for the normal person, circumstances may arise in pregnancy when this is insufficient. It has been shown that the administration of this vitamin, in pure form antenatally to the mother, effects a marked reduction in the hemorrhagic diathesis and cerebral hemorrhage in the new-born. Hence the routine use of vitamin K may well become a valuable addition to obstetric practice.

LACTATION

Throughout pregnancy the maternal organism is called upon to provide nourishment for the fetus. Lactation is but a continuation of this function through the medium of the milk supply rather than the placenta. As the child grows the need for nourishment is increased many times over that of fetal life. Consequently, larger amounts of all those nutrients that have been stressed as being essential for successful pregnancy are needed for the establishment of a milk supply of high quality. Abundant evidence exists demonstrating that the milk supply of any lactating animal is markedly affected by diet. Insufficient calories and inadequate protein reduce the quantity of milk produced; inadequate amounts of minerals serve chiefly to rob the tissues of the lactating animal; and inadequate amounts of any of the vitamins reduce the quality of the milk in so far as that specific vitamin is concerned.

SUMMARY

Enough evidence, both clinical and experimental, has been cited to call attention to the importance and need for sound dietary advice and practices throughout pregnancy and lactation. Almost every pregnant woman is sufficiently interested in her own health and that of her child to be willing to follow any practice that will lessen the hazards of pregnancy and aid in the building of a fine baby. She needs advice of a definite, positive kind, advice that she is capable of understanding and that she has the financial means of following.

It is not enough to state "no special diet is required during pregnancy. If you are accustomed to eat nutritious and easily digestible food in properly balanced proportions, no change in your dietary routine is necessary." How does a mother know whether her food is nutritious and in properly balanced proportions. The taking of a detailed dietary history several times during

pregnancy, followed by suggestions and help in the making of necessary changes, would seem as important a procedure in the management of pregnancy as the physical examination and medical history.

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What Is Happening to Social Gains of the Last Ten Years?*

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MORE than any other aspect of the general welfare, it is in public health that science confronts the social sciences. For public health is collective health, and the purpose of the public health movement is to promote the application of the results of science by and for the community. In this process of application, it becomes necessary to understand how collective health is conditioned by the relation of man to man and by the laws of human association, which is the domain of tomorrow's sociology.

The whole process was well illustrated in the life and work of Dr. Stephen Smith, first president of the American Public Health Association. When, before the 1860's, Dr. Smith practised at Bellevue Hospital in the serious epidemic of typhus fever in New York, he traced to one lodging house a number of serious cases. Seeking to eliminate this center of infection, he sought out the responsible owner, and found him in his home on Union Square. But the lodging house, said the owner, had never "paid." It was a nuisance to him. Vacant, it had been occupied as free lodgings by recently arrived immigrants. The owner would do nothing. The city government had no power. From this experience came Dr. Smith's motivation to work in the Civic Association and to bring about a sanitary survey of New York City. This survey led to the municipal health law, which was the forerunner of similar legislation in other cities. Recognizing the need for public education, Dr. Smith took a leading part in the establishment of the American Public Health Association to promote this legislation and to improve its administration.

Thus in his own work Dr. Smith set a pattern in which we discern the stages of all sound social action: (1) experience, (2) vision and a social conscience to motivate the individual in the arduous task of social change, (3) research, which is formulated experience, (4) experimentation, or demonstration, which is closely allied with research, and (5) generalization, which makes experimentation community-wide and available to all. In the first four steps the support of an enlightened few can always be won. In the last, the task of generalization, usually requiring action by government, we come into the area of conflicting interests. Dr. Smith's knowledge of the origin of typhus fever and of the means of treating and of preventing it could not be fully applied until he confronted the problems presented in the field of economics, where ownership is not yet made responsible for the welfare of the community; and in the field of political science, where

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steps have to be taken to secure public support, to convince legislators, and to insure effective administration of a new law.

The social gains of the last ten years, which constitute the subject of this paper, may be looked for in this area of generalization. Here also we find the conflicts which have checked these gains or even to some extent nullified them. Here, again, we find the unfinished tasks of the future.

In this past decade the notable advance in social welfare has been the recognition of governmental responsibility on a national scale for meeting individual needs and for establishing new standards. Out of the profound and widespread suffering of unemployment came at last in our country the assumption by the federal government of the burden of relief, together with measures of social security directed toward meeting individual needs. In a different category the federal legislation of the past decade has included attention to the organization of productive forces, rather than their mere regulation. The Tennessee Valley Authority and the Rural Electrification Administration are typical of action in this field. Finally, another type of social gain has been made in the establishment of the right of collective action in industrial relations. The legislation which has established the right of workers to bargain collectively has far-reaching implications for the public health movement. Enforcement of standards in living and working conditions requires the day-to-day experience and watchfulness which can be developed in the trade union through joint action between management and workers.

Thus the social gains of the past ten years may be summed up as twofold: a new concept of government, or, perhaps better, the practice of an old concept embodied in the constitutional obligation of the federal government to promote the general welfare; and new possibilities of workers' action for health and safety.

Where, then, are the setbacks? They are illustrated in the public health movement. In the hopeful days when the new program of this decade was being planned in the federal government, one of your leaders declared that in public health we were moving from experimentation to action. Looking back, we have to say that the movement has been slower than he apparently anticipated. The circumstances are too well known to public health workers to need detailed analysis. The Committee on Economic Security appointed by the President was charged with the duty of making recommendations regarding health insurance. A careful study was made and a program developed; but, apparently, conflicting interests came into play, with the result that, when the committee's report was finally transmitted to Congress, it contained no mention of health insurance.

Thereafter came the National Health Conference, with the findings before it of the National Health Survey, showing that between 40 and 50 million individuals lived in families in the United States having an annual income so low as to have no reserves for the economic hazards of sickness. Moreover, at the time of the survey, in the 2,500 rural counties only 946 health officers were serving full time, and only 770 institutions had any true outpatient departments. The recommendation for a modest yet fairly adequate appropriation by the federal government, which was made by the National Health Conference, was placed before Congress, but never enacted. Even the President's final program for a limited number of hospitals has received no attention. The American Public Health Association has played its part in seeking to promote health insurance and extension of medical service, but other organized groups in

the medical profession have vigorously opposed this generalization of health.

The same checks to progress through opposing interests are illustrated in housing. In January, 1934, the New York Legislature passed a law which recounted in its preamble the conditions and the remedy for them. The preamble called attention to the effects on community health and welfare of congested and crowded living conditions. At the same time the statement was made that proper housing for the numerous families in low-income groups could not be provided by private enterprise. This need had to be met by government. Despite this legislative assertion, and despite legislation by the federal government and by the states, many communities today lack proper housing, even in areas where production for national defense goes forward under governmental control.

The great fact to be faced in a consideration of what is happening to social gains is today's war. Shall it be classified as a setback, an interruption, or a profound experience of the human race, challenging new examination of the basis of social welfare, and a rallying of forces for the constructive work of peace? It should indeed be a source of discouragement if public health workers have learned to prevent epidemics of typhus fever and cholera from crossing national boundaries, only to find their efforts to prolong life defeated by destruction of life on the battlefield, through bombing of populations, sinking of ships, and starvation of peoples through economic blockades. War is the great offense against public health.

Whatever the conclusion regarding the causes and significance of war, we are forced today to a new concentration upon industry and industrial relations as basic in understanding the social gains and the social losses of the recent past. The experience of unemployment, which we have noted as giving rise to "the new social welfare," as it is called in the title of this session, was an industrial phenomenon. Action by the federal government has related to workers, employed and unemployed, and in general to economic trends and industrial standards.

The vital importance of industry to the public health has been recognized by this Association. On your fiftieth anniversary Dr. George Martin Kober analyzed the history of industrial hygiene. He quoted a historian of industry who declared, in effect, that industry indicated the progress of the human intelligence, and that industrial history marks stages in the evolution of mind; "the intelligence of a race is measured by its industry, and . . . the primary *raison d'etre* of industry is safety and health." Such a concept takes on new significance in the profound changes wrought by technology in methods of production today. It calls for study and action along broad lines.

The new technology has brought new hazards to health and safety. The bituminous coal mines are an illustration. The year 1940 had the worst record in number of fatalities from major disasters since 1928. The reports of experts clearly reveal that the explosions causing these deaths were directly traceable to failure to take the precautions long established but now neglected because rapid mechanization has created the temptation to introduce two and three shifts and to increase speed. On October 1, the new federal mine-inspection law took effect. It gives new powers, though still quite inadequate, to the Bureau of Mines. It provides for an advisory committee composed of operators and miners. This committee will be reinforced by the new provision for joint safety committees contained in the Appalachian agreement of 1941 between the operators and the United Mine Workers. The men who work see dangers and can prevent them if they

participate in safety committees. This pattern of action reinforced by legislation now being initiated in the mining industry is applicable to other industries.

The experience of a decade may be summed up by saying that the public health movement is clearly conditioned by the progress of social welfare, and also that public health workers are needed to play an important rôle in social progress. This function may be described as the setting of standards. The word is familiar to this Association, since one of its characteristic methods has been the study of standards to be established in various phases of living and working conditions. Attention is now needed to the whole broad subject of standards of living, with standards of working conditions regarded as a branch. Out of the scientific work related to health should come precise definitions of what is adequate in food, clothing, and shelter, and what is possible in providing safe and healthful conditions of work. Science has given the basis for these standards. What is needed is their generalization.

Such a task is not limited to one nation. At this gathering are distinguished foreign guests, notably from other countries of the Western Hemisphere. In areas of production of raw materials in many of the countries of Latin America the need is great for establishment of standards of working and living conditions. Public health workers in the United States have an obligation to these countries, since ownership and management of their industries are vested in large part in the United States.

An international view of public health and its industrial basis will be needed in the terms of peace. Indeed, public health workers should not underestimate the potential significance of their work at the peace table. Recognition and establishment of proper living standards for all peoples of the world should be demanded of all governments whose representatives will have responsibility and power for working out the new basis of international relations. The applicability is clear for such a program of public health in countries which have had a more or less defined colonial status or at least have been subject to absentee ownership of their natural resources, such as India, China, Africa, and the Near East, not to mention our neighbors in Latin America.

Technology has vastly increased man's power to control his environment. The will to control it and to give the benefits of the new science to all people waits upon a new vision of man's relation to man.

Recent Studies in Influenza*

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WITHIN the past year a number of significant advances have been made as a result of laboratory investigations of epidemics of influenza. A second etiological agent has been discovered. Indirect evidence has been obtained that at least a third causal agent exists. Two new diagnostic technics have been described. In the case of influenza A it has been found that artificially increased antibody levels are associated with decreased susceptibility to the disease.

The possibility that the etiology of influenza was varied has been recognized for some time. Within two years of the discovery of the first influenza virus by Smith, Andrewes, and Laidlaw[1] these investigators recognized that clinical influenza was probably not a single etiological entity.[2] Two years later Francis[3] showed that an epidemic of influenza could occur in the absence of demonstrable infection by the virus of the British workers. Additional epidemics of influenza which occurred in 1940 in England[4] and this country[5, 6] were also found not to have been associated with what is now termed influenza A virus.[7] As is well known, numerous workers in various parts of the world showed during the period 1935–1940 that in many epidemics influenza A virus had been causally related to the disease. During the past year it was clearly recognized by some investigators that, while certain epidemics of influenza were associated with infection by a known virus, others, although manifesting similar clinical and epidemiological characteristics, were not. This led naturally to the hypothesis that some other agent, probably a virus, might also be associated with this disease.

In 1940 Magill[8] and Francis[5] described independently two new strains of influenza virus. These strains were antigenically distinct from strains of influenza A virus; they were not neutralized by antisera against the latter agent and antisera against the new strains failed to neutralize influenza A virus. Furthermore, the patients from whom these new strains were obtained developed, during convalescence from influenza, increased levels of neutralizing antibodies against the homologous strains but did not produce additional antibodies against influenza A virus.[5, 9] Francis[10] showed that the new virus could be differentiated from the first influenza virus by means of the complement-fixation test. It has been found recently[11] that these two new strains possess common antigenic components, that is, antisera against either strain will neutralize the other. Both these strains have been found to fulfil all of the criteria necessary for their classification as influenza B virus[7] and are now usually so designated. A number of additional strains of influenza B virus were recovered from patients with clinical influenza during the past year.[6] All

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of these strains were neutralized by antisera against other strains of influenza B virus; none were neutralized by antisera against influenza A virus. The patients from whom these strains were recovered produced additional antibodies against influenza B virus during convalescence; with but one exception, none of these patients developed increased antibody levels against influenza A virus. Not only did influenza B occur during the winter of 1940,[5, 6, 9] but Francis[10] has shown that a number of cases in the 1936 epidemic in California were undoubtedly of this variety. Furthermore, Andrewes[12] has recently obtained evidence which indicates that influenza B was present in England during 1940.

These studies seemed to indicate clearly that clinical influenza may be associated with infection by two distinct and antigenically different agents—influenza A virus and influenza B virus. But it now seems likely that additional infectious agents, possibly still other influenza viruses, associated with the etiology of this disease remain to be discovered. The evidence for this hypothesis is indirect and was obtained during an extensive etiological investigation carried out on more than 1,300 cases of clinical influenza.[6] These cases occurred during three distinct epidemic periods in this longitude between January, 1940, and February, 1941. By means of appropriate tests on both acute phase and convalescent sera an attempt was made to establish the nature of the infecting agent in each case. In the majority of instances it was possible to demonstrate that a significant increase in antibodies against one or the other of the two known influenza viruses had occurred during convalescence. In some instances antibodies against influenza B virus were produced, in others antibodies against influenza A virus developed and in only 7 cases, or 0.5 per cent, were increased antibody levels against both viruses demonstrated. However, in 388 cases, or 30.5 per cent, antibodies were not produced against either virus. Throat washings obtained from representative cases in this latter group, although they sometimes caused suggestive signs of infection after the inoculation of ferrets, were found not to contain either influenza A virus or influenza B virus. It seemed probable therefore that at least a third distinct infectious agent might be associated with clinical influenza. So far efforts to recover and indentify this hypothetical agent have been unsuccessful.

At the present time it is possible to distinguish between at least three apparently different varieties of clinical influenza. Unfortunately the symptoms, physical findings, and clinical courses of these three varieties seem so similar as to be almost indistinguishable. It may be that future investigations will reveal differences, but so far no distinguishing clinical characteristics have been noted. Laboratory tests will however differentiate one kind of influenza from another. The present subdivisions of the syndrome may tentatively be defined as follows: influenza A, an acute febrile disease in which influenza A virus can often be recovered from the nasopharynx during the first few days of illness and an antibody response against this agent can be demonstrated regularly during convalescence; influenza B, an acute febrile disease in which influenza B virus can often be obtained from the nasopharynx during the acute stage and increased antibody levels can be demonstrated regularly against this agent during convalescence; influenza " Y," or influenza of unknown cause, an acute febrile disease in which neither influenza A nor B viruses can be found in the nasopharynx and no increase in antibody levels against either virus can be demonstrated during convalescence. It seems logical to think that this latter subdivision may repre-

sent a group of specific etiological entities.

It is well known that clinical influenza tends to occur in epidemics and that in this latitude the epidemics usually occur during the winter months. By analogy from other well defined epidemic diseases it might be thought that all or almost all cases in a single epidemic of influenza would be of one etiological variety. There is now considerable evidence [4, 13, 6] to indicate that this is not the case. During the course of the extensive investigation of the etiology of influenza [6] referred to previously, it was found that at least three varieties of influenza could occur at the same time in a single epidemic. Even in outbreaks among the inmates of individual institutions, evidence was obtained that some patients had influenza A, others influenza B, and still others influenza "Y." These unexpected results indicated that an epidemic of influenza may be of diverse etiology and led to the hypothesis that any individual case of influenza may be associated with infection by one of at least three different agents.

On this basis it seems evident that the demonstration that a few selected cases in a given epidemic were infected with influenza A virus, or influenza B virus, can hardly be taken to indicate that the whole, or even the major part of the epidemic was either influenza A or influenza B. Similarly the failure to obtain evidence that any case in a small sample was either influenza A or B should not necessarily lead to the conclusion that these varieties were not present in the epidemic.

Until very recently the virus neutralization test and the complement-fixation test were the only methods known to be useful in measuring antibodies against influenza viruses. In 1941, two new *in vitro* technics were described. Goodner [14] developed a technic termed "collodion fixation" by means of which either virus or antibody could be detected with great delicacy. Hirst [15] discovered that the allantoic fluid of chick embryos infected with either influenza A or B virus was capable of agglutinating red blood cells. He also found that this phenomenon could be used to measure the relative quantity of either virus or antibody. This technic will probably become very useful, since it is simple, rapid, and appears to be equally as specific as the laborious neutralization test.

Immunity to influenza is an important problem and a difficult one. It is well known that individuals may contract the clinical disease repeatedly. However, since the syndrome embraces two known distinct etiological entities and almost certainly includes at least one more, it may be that repeated attacks are associated with infection by different agents. There is evidence that this may be true. Magill [16] has presented data to show that one individual had influenza A in 1939 and influenza B in 1940; while another individual had influenza A in 1937, influenza due to neither A nor B virus in 1939, and influenza B in 1940. Furthermore, in an observation area where some 1,200 persons have been carefully followed since 1937, there was a small epidemic of influenza A in 1939.[13] At that time 59 persons contracted the disease, and 63 others developed subclinical infections by influenza A virus. In 1941, 23 cases of influenza A occurred in this same population, but none of the 122 persons infected 2 years previously contracted the disease.

It is seldom possible to determine whether a given individual is immune or susceptible to one or another variety of influenza by direct test. However, in instances in which volunteers were given influenza A virus intranasally, only those individuals developed a manifest infection who had low levels of antibodies against this agent.[17, 18] Whether experimentally induced influenza A in human beings is entirely analogous to

the naturally occurring epidemic disease may be open to some question. Therefore, efforts have been made to determine whether there was any relationship between the various antibody levels found in normal individuals and the occurrence of the natural disease.

It has been known for some time that different individuals possessed different amounts of antibody against influenza A virus,[2, 19] and recently the distribution of antibody levels in a normal population has been studied.[13, 20] This was done under carefully standardized conditions with sera obtained from over 1,300 apparently normal persons residing in areas in which epidemics of influenza had not occurred for at least 2 years.[20] Then, in 310 individuals who contracted proven influenza A, a study was made of the serum antibody levels, either prior to the onset of the disease or in the first days of the illness before additional antibodies were produced.

The results showed that considerably more cases of influenza A occurred in persons with low antibody levels against this virus than were to be expected. This indicated that persons with low levels of antibodies against this virus were relatively susceptible to influenza A. Conversely, many fewer cases of the disease occurred in persons with high antibody levels than would have been anticipated. This indicated that individuals with high antibody levels were relatively resistant to influenza A. It is of importance to point out that no critical antibody level was found which assured complete immunity against the disease and that a few individuals in even the highest antibody range were found to have contracted influenza A.

The finding that there was a definite correlation between high antibody levels against influenza A virus and relative resistance to the disease itself suggested that additional attempts at prophylactic immunization against influenza A might be made. It seemed probable that if it were possible to increase antibodies against this virus to sufficiently high levels in a given population, the incidence of influenza A in an epidemic might be reduced.

It was shown previously[21] that a "complex vaccine" containing influenza A virus stimulated the production of more antibodies against this agent than other vaccines tested in human beings. Efforts were made to determine whether this vaccine would actually produce a significant degree of immunity against the natural disease itself.

Large groups of persons in various institutions in different parts of the United States were given a single subcutaneous injection of the complex vaccine during 1940. Somewhat larger groups in the same institutions were left as unvaccinated controls. Three reports on results obtained in field tests with this vaccine have already appeared. Dalldorf and his coworkers[22] investigated one institutional outbreak of influenza which occurred 1½ months after vaccination. A total of 77 clinical cases occurred and serological tests were made on 59 cases. Approximately three-fourths of the cases studied were found to have had influenza A. A slight reduction in the incidence of the clinical disease was observed in the vaccinated group but, because of the small number of cases, this seemed of doubtful significance.

Martin and Eaton[23] investigated two institutional epidemics which commenced a few days after vaccination. A total of 806 clinical cases occurred, but serological tests were carried out on only 76 cases. It was found that approximately three-fourths of the cases tested had influenza A. On the basis of this evidence it was considered that all of the clinical cases probably had influenza A. In one institution a significant reduction in the incidence of clinical influenza among vaccinated individuals was observed. In the other

institution there was no significant difference between the incidence of the illness in the vaccinated and control groups.

In another report [24] the results obtained in 10 separate institutional epidemics which occurred 4 months after vaccination were analyzed. The increase in antibodies against influenza A virus which followed the administration of each lot of vaccine was determined 2 weeks and 4 months after vaccination in a considerable number of individuals. Consequently the specific antigenic potency of each lot of vaccine could be assessed. A total of 1,450 cases of clinical influenza occurred, and serological tests were carried out to determine the nature of the virus infection on 967 cases, or 66 per cent of the total. It was found that, in the 4 institutions in which vaccine of relatively poor specific antigenic potency had been used, the incidence of influenza A among vaccinated individuals was only 19 per cent lower than among control individuals. However, in the 6 institutions in which vaccine of relatively good specific antigenic potency had been used, the incidence of influenza A among vaccinated individuals was 50 per cent lower than among control individuals. It is of importance to point out that the incidence of influenza of unknown cause, or influenza "Y," was not significantly different in the two groups, although almost 30 per cent of the total number of clinical cases were of this variety.

The significance of these results does not arise from the observation that the incidence of influenza A was lower in the vaccinated than in the control groups. Rather it lies in the demonstration that an artificially produced increase in antibodies against influenza A virus was associated with a decreased susceptibility to influenza A. It appears that the antibody levels which are developed following vaccination with this virus contribute to a state of relative resistance to influenza A to an extent approximately equal to, but no greater than, corresponding antibody levels possessed by normal individuals.

It might be thought that, by means of the administration of influenza A virus vaccines of much greater antigenic potency, considerably higher antibody levels could be achieved and then that a corresponding increase in resistance to this disease would be acquired. It is probable that to some extent this can be accomplished but it seems very improbable that the parenteral administration of influenza A virus in human beings will result in the regular production of those excessively high antibody levels which appear to be correlated with a degree of resistance approaching actual immunity to this disease.

At the present time but little is known regarding resistance to influenza B. However, there is evidence [20] that the level of neutralizing antibodies against influenza B virus may be one factor in determining susceptibility or resistance to it, in a manner analogous to that of antibodies against influenza A virus in the case of influenza A.

There is also evidence [20] that the level of antibodies against influenza A virus has no relation to susceptibility to influenza B, and vice versa. Since it is known that influenza A and B viruses do not possess demonstrable common antigenic components, this lack of heterologous relationship was to be expected.

It is obviously impossible to make any comments upon factors which may be of importance in determining resistance to influenza "Y," since so far the infectious agent or agents associated with this illness have not been discovered.

It should be apparent that the etiology of clinical influenza is still an important problem and that much remains to be learned regarding the nature and characteristics of the causal factors

responsible for this group of clinically similar illnesses.

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Diagnosis of Epidemic Encephalitis by Complement-fixation Tests*

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IN previous publications[1] we have described how the complement-fixation test could be used extensively in the study of central nervous system virus infections. Antigens having no anticomplementary power can easily be prepared from infected mouse brain tissue, and by inactivation of the sera at the proper temperature, specific reactions are obtained.

Recently we have had the opportunity to apply this test on a large scale for diagnostic purposes in a severe outbreak of epidemic encephalitis in man.

Starting early in August and lasting through the middle of September, there took place, in several mountain and north central states as well as in some Canadian provinces, especially Manitoba, a serious outbreak of encephalitis which occurred simultaneously with an epidemic of poliomyelitis, making the clinical diagnosis very confusing.

Samples of blood serum were obtained from Manitoba and Colorado.‡ Seventy-four sera from Manitoba and 9 from Colorado were tested for complement-fixing antibodies in an attempt to establish a diagnosis. Each serum was tested simultaneously against the antigens of EEE, WEE, LCM,† and St. Louis encephalitis. In every instance the reaction with the EEE, LCM, and St. Louis encephalitis has been negative, whereas from the beginning it was well apparent that the number of sera reacting with the WEE antigen was very large.

The sera were inactivated at 60° C. for 20 minutes, except in a few instances when a temperature of inactivation of 65° C. was used; each serum was tested in twofold dilutions through 1:16, starting with either undiluted serum or serum in dilution 1:2.

A sample titration is given in Table 1.

Of a total of 83 sera 44, 53 per cent, gave a positive reaction with the WEE antigen, and 39 were negative. The titers of the positive sera as determined by the highest dilution giving a 2 plus or better reaction were: 1:2 in 4 cases; 1:4 in 6 cases; 1:8 in 7 cases; and 1:16 or better in 27 cases.

The proportion of sera, 53 per cent, reacting with WEE antigen, was high, yet perhaps not sufficient in itself to give more than presumptive evidence as to the etiology of the infection. But there are two very interesting observations that render the diagnosis almost certain: (1) the proportion of positive

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† EEE—Eastern equine encephalomyelitis; WEE—Western equine encephalomyelitis; LCM—lymphocytic choriomeningitis.

‡ The blood sera from patients were kindly supplied by the following persons: Dr. Daniel Nicholson, Dr. J. D. Adamson, and Dr. Bruce Chown, all of Winnipeg, Canada; Captain C. E. G. Gould and Lieutenant S. Young, of Manitoba, Canada, and Dr. Joseph E. Smadel, of New York. To all we express our gratitude.

TABLE 1

COMPLEMENT-FIXATION TEST

Human Sera Inactivated at 60° C. for 20 Minutes

Mouse Brain Antigens

Sera	Antigen: Western Equine Encephalomyelitis — Dilution of Serum					Antigen: Eastern Equine Encephalomyelitis — Dilution of Serum					Antigen: Lymphocytic Choriomeningitis — Dilution of Serum					Antigen: St. Louis Encephalitis — Dilution of Serum				
No.	1:1	1:2	1:4	1:8	1:16	1:1	1:2	1:4	1:8	1:16	1:1	1:2	1:4	1:8	1:16	1:1	1:2	1:4	1:8	1:16
118	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136	4	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	4	4	4	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	4	4	4	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

4 = No hemolysis
0 = Complete hemolysis
2, 3 = Intermediate degrees of hemolysis

sera in connection with the time elapsed since onset of the disease, and (2) the results obtained with sera from patients from which two samples of blood have been obtained at different periods following onset.

Table 2 gives the number of sera reacting with the WEE antigen in relation to the number of days elapsed between onset and bleeding for the complement-fixation test.

The results as summarized in Table 2 give strong evidence that the WEE virus was the one responsible for the epidemic outbreak, since of those patients bled 10 days or less after onset, only 2 of 25, 8 per cent, had antibodies, whereas of the patients bled 11 or more days after onset, 42 of 58, 72.5 per cent, were positive.

In 7 cases blood was obtained from the same patient at two different dates following onset; the result of these tests is given in Table 3.

In 4 cases a reaction which was negative in the early days of illness became strongly positive later on in the disease or convalescence, and in a 5th case a titer of 1:8 on the 9th day rose to higher than 1:16 on the 24th day.

This evidence in connection with that given in Table 2 clearly establishes the etiology of the epidemic beyond reasonable doubt.

We may add in passing that from 1 fatal case from Winnipeg a virus was obtained which on neutralization and cross-protection tests behaved like known strains of WEE virus.

In this epidemic, by means of the complement-fixation test, a diagnosis was obtained earlier than by any other

TABLE 2

Interval between Onset of Disease and Bleeding for Complement-fixation Test	*Number of Sera*	*Reaction with Western Equine Encephalomyelitis Antigen*	
		Total Positive	*Per cent Positive*
Days			
0 to 5	9	0	0
6 to 10	16	2	12.5
11 to 15	26	16	61.5
16 to 35	32	26	81.3

TABLE 3

Patient	First Bleeding for Complement-Fixation Test: Number of Days from Onset	First Bleeding for Complement-Fixation Test: Reaction with Western Equine Encephalomyelitis Antigen	Second Bleeding for Complement-Fixation Test: Number of Days from Onset	Second Bleeding for Complement-Fixation Test: Reaction with Western Equine Encephalomyelitis Antigen
W. # 150	10	Negative	31	Positive — 1:16
Ha. # 124	7	Negative	30	Negative
Hu. # 123	6	Negative	29	Negative
Be. # 154	10	Negative	25	Positive — 1:16+
K. # 155	9	Positive — 1:8	24	Positive — 1:16+
Bl. # 127	6	Negative	17	Positive — 1:16+
Br. # 146	2	Negative	22	Positive — 1:32+

method; for this reason and also because of the possibility of making observations on a much greater number of specimens, we believe that the complement-fixation reaction is more practical than the neutralization test.

In concluding, we would like to give a description of the test as it is run in a simplified form.

The antigen is a suspension of infected mouse brain in 10 times its weight of saline. This emulsion is kept in the icebox 20 hours, then it is centrifuged at 2,500 r.p.m. for 30 minutes; the supernatant is frozen and thawed 5 times in a dry ice-alcohol mixture and then centrifuged in the Swedish angle head centrifuge at 3,500 r.p.m. for 1 hour; the supernatant, after the addition of merthiolate in dilution 1:10,000, is the antigen. These antigens are virulent and precaution should therefore be observed in handling them. We know that avirulent antigens can be prepared using ultra-violet light as the inactivating agent. Rabies and EEE virus antigens have thus far been tested with satisfactory results. The sera are inactivated at 60° C. for 20 minutes, undiluted or in dilution 1:2.

The test is run as follows: the complement is titered as for the Wassermann reaction; two units are used in the test. Then come the successive steps of the reaction:

1. Twofold dilutions, from 1:1 or 1:2 through 1:16, of the inactivated serum are put in as many series of tubes as antigens are available; the volume of the serum dilutions is 0.25 ml.

2. 0.25 ml. of a given antigen is added to each tube in the series. In our tests at least 4 different antigens have been used each time, namely WEE, EEE, LCM, and St. Louis encephalitis.

3. An extra tube is set aside for each antigen, as control of the anticomplementary power of the antigen; this tube contains 0.25 ml. of antigen and 0.25 ml. of saline, the latter to substitute for the serum.

4. Two units of complement, as determined by the previous titration, are added to *each* tube in a volume of 0.5 ml.

Now the tubes containing the dilutions of serum, the antigen, and the complement all in a volume of 1 ml., as well as the tubes containing the antigen and the complement but *no* serum also in a volume of 1 ml. (since 0.25 ml. of saline substitutes for the same volume of serum), are placed in the icebox for 18 hours. Following this incubation the tubes are kept at room temperature for ½ hour, and the hemolytic system is then added, consisting of 0.25 ml. of a 3 per cent suspension of packed sheep blood cells and 3 hemolytic doses of antisheep hemolysin also in 0.25 ml. The total volume of fluid in each tube is now 1.5 ml. The tubes are incubated in a water bath at 37° C. for ½ hour and the reaction is read.

We believe that this simplified reaction can substitute for the more elaborate one described by Dr. Palacios and myself some time ago,[2] and that the efficacy of the complement-fixation test in the diagnosis of certain central nervous system virus infections is well exemplified by the results here reported.

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Sanitary Engineering Activities of the Sanitary Corps, United States Army*

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THE Sanitary Corps is one of the components of the Medical Department of the Army. Its function is to provide technical advice and assistance to the Medical Department in the application of the principles of military sanitation for the prevention or control of disease and the conservation of the health of the troops. In performing these duties, the same basic principles are employed as in civilian health work though the methods of application may, of necessity, differ, due to the military situation and to Army organization and procedure. The services of a variety of specialists are required and the Sanitary Corps includes not only sanitary engineers but also chemists, bacteriologists, entomologists, and other non-medical public health specialists. However, in this discussion, special attention will be given to sanitary engineering activities.

ORGANIZATION AND DUTIES

Sanitary engineering is organized as a subdivision of the Division of Preventive Medicine in the Office of The Surgeon General. Similar organizations on a smaller scale are provided in the offices of the Corps Area Surgeons and in some of the Overseas departments. Sanitary engineers are stationed at all of the important camps and cantonments and at some of our new bases. General needs and policies are determined in the Office of the Surgeon General and instructions are issued through the Corps Areas and the departments, outlining the procedures to be carried out. Details are the responsibility of the men in the field since, being on the ground, they are better able to evaluate local needs and determine the procedures most suitable to meet them.

Sanitary engineers may be called upon to investigate, report on and make recommendations relative to the sources of water supply, the methods of water purification, the treatment of sewage, the disposal of waste, the control of mosquitoes or other carriers of disease, and the location of camps. Their duties consist mainly of inspection and advice; other Arms and Services furnish the labor, funds, and equipment, and perform the required work. The duties that Sanitary Corps officers may perform, and their relations with other Arms and Services may be outlined briefly as follows.

WATER SUPPLY

The provision of water to camps, posts, and stations in the United States is a function of the Quartermaster

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Corps. However, since the Medical Department is charged with the responsibility for factors that may affect health, it must concern itself with all of the steps in the procurement and treatment of water, including the selection of the source, the sufficiency and quality of the supply, the type of treatment, and operating procedures. The Corps of Engineers is charged with providing water in the field but the Medical Department is again responsible for factors affecting health and for supervision of both procurement and treatment.

Of the new camps, 11 are served by modern filtration plants; the others obtain water from wells or from adjacent municipal plants. The available quantity or quality of water is often a determining factor in the selection of sites for large camps, since the provision of 3.5 to 5 m.g.d. is not a simple problem, due to the pollution of surface sources, lack of reservoir sites, or absence of available ground water. When a camp is located near a city, it may be assumed that the population of that city will increase by one-half the number of troops in the camp. The resulting increase in water consumption is often a burden upon the municipal system.

Records from a number of camps indicate an average water consumption of slightly more than 100 gallons per man per day, with individual camps varying from 65 to 136 gallons.

SEWERAGE

The Quartermaster Corps is charged with the design, construction, and operation of sewage treatment plants for camps and cantonments. Since improper design or operation may affect health, the responsibility and scope of the duties of the Medical Department are broad, and frequently involve both the bases of design and the types of construction.

Of 45 major Army camps, 3 use adjacent municipal sewerage systems for disposal; one has an Imhoff tank installation; 1 uses sand filters; 9 provide primary treatment and separate sludge digestion; 7 have standard trickling filter plants; 5 use activated sludge plants; and 19, high-capacity filters. Sewage flows, as reported by a number of camps, average 98 gallons per man per day. The biochemical oxygen demand of the sewage ranges from 106 to 355, averaging 253 p.p.m. Suspended solids vary from 138 to 300 and average 213 p.p.m. The characteristics of camp sewage appear to be about the same as the sewage from the average municipality, though the grease content may be greater. Investigations are now being made regarding this.

MOSQUITO CONTROL

In applying the measures for the control of mosquitoes, many interesting and difficult problems are encountered. At Camp Davis where, in addition to salt marsh problems, there are large swamp areas to be drained, four draglines were employed to cut main ditches. At Camp Stewart, Ga., large dragline ditching was also needed. In the three camps near Alexandria, La., every type of work—ditching, oiling and larvicides—was necessary to maintain control. In addition to the natural sources of mosquito production, borrow pits, resulting from construction have been troublesome at numerous camps. Water standing under buildings has been an annoying source of production. In many camps, grading operations left low places under buildings which held water indefinitely. In one camp, 1,500 buildings required attention, and in other camps the situation was nearly as serious. Most of the camp buildings are supported on posts or piers and in some camps the fill around these posts settled so that around each support there developed a miniature mosquito producing area. Drainage and filling to remedy these conditions required a large force of men and a considerable

period of time, during which control was maintained by oiling.

Various types of larvicides have been used in order to test their efficiency by large scale work in the field. Pyrethrum and phenol larvicides have been satisfactory but most of the men in the field are more familiar with oil and appear to prefer it. While the kind of oil depends to some extent upon local availability, a No. 2 Diesel oil is most commonly used. The smaller fruit sprayers are preferred to the knapsack sprayer. More work with larvicides is planned for the 1942 season for their use reduces the size of the organization required to handle and supply oil and they are more effective in shallow areas containing heavy vegetation.

Experiments have been made on the large scale protection of outdoor gatherings, as at anti-aircraft emplacements. Results from these are promising but as yet inconclusive.

The large areas over which modern-day maneuvers are held, provide a complicated problem in mosquito control. At Camp Robinson, oil and Paris green were used, the work being started two or three weeks in advance of field exercises. A marked reduction in the prevalence of mosquitoes was noted. In the Tennessee maneuver areas, the U. S. Public Health Service and the State Department of Health oiled standing water throughout the area beginning about three weeks before the maneuvers were scheduled. Field commanders reported few mosquitoes in the treated areas. However, it is not believed that effective control can be economically carried on in the large areas covered by present maneuvers.

The result of the Army's mosquito control work is reflected in the materially lowered rates of malaria incidence in the United States. To September 1, the rate of admissions for malaria has been approximately two-thirds of the 10 year average (1931 to 1940), and one-third of the 1918 rate. However, the maneuvers just ended have added a complicating factor, due to incomplete mosquito control in maneuver areas and the use of atabrin and quinine. Data are not yet available to indicate how the malarial rate will be affected, but a marked rise has been noted in the weekly rates for the first part of September.

In mosquito control, it is the responsibility of the Medical Department to determine the need for the work, to prepare the necessary plans, and to provide the technical supervision for carrying it out. Normally the Quartermaster Corps performs the actual labor. However, in order that the work would be started promptly last spring before mosquitoes began to emerge, the Medical Department in most camps organized its own crews and performed the work of ditching and oiling. The results obtained justified this departure from custom, but since mid-summer, this work has been, for the most part, turned back to the Quartermaster Corps with the Medical Department retaining supervision and technical direction.

SELECTION OF CAMP SITES

After a cantonment site is tentatively selected through field investigation, its advantages and disadvantages are reviewed in the office. Factors reported on by the Sanitary Corps include method and degree of sewage treatment and location of the treatment plant with reference to the surrounding community and to the camp area; the source of water supply and the treatment required, including a study of the probable surface and other pollution after the camp is established and satellite communities have grown up around it; the problems of malaria and mosquito control; the prevalence of other diseases, and the methods and cost of control; and efficiency of local and state health departments.

OTHER DUTIES

In an organization the size of the United States Army, problems involving sanitary engineering arise constantly. Therefore, an important part of the work of the Subdivision of Sanitary Engineering is that of advice and consultation to The Surgeon General and his staff. This work has included sanitary engineering problems affecting our new bases, sanitary surveys, assignment and utilization of engineering, laboratory, and entomological personnel; planning and the allocation of funds for the control of insect and rodent disease carriers; provision of water supply to troops in the field; plans for water supply and waste disposal; and problems incident to present-day field operations.

The Sanitary Corps is wholly a reserve component of the Army, there being no regular officers commissioned in it. Thus, its organization and the performance of the duties described have of necessity proceeded side by side. What has been accomplished, however, would have been impossible of attainment without the understanding and coöperation of the officers of the Medical Department, especially Col. James S. Simmons, under whose direction the Sanitary Corps has had the fullest opportunity to organize efficiently and work effectively.

Two Years' Experience in a Nutrition Program for National Defense*

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ALTHOUGH Canada has now been at war for more than two years, its food problems—in common with those of the United States—have hardly been affected by the war. This is due to the fact that there is an abundant production of practically all foods and that fortunately our country is not in the actual theatre of war. Therefore our nutritional problems during the past two years have been essentially those of a country at peace, with the exception of the specific problems concerning the feeding of the Armed Forces of Canada.

Has Canada a nutritional problem? Surveys conducted before the war in Great Britain indicated that between one-third and one-half of the population was not receiving a diet adequate for health. Similar surveys conducted in the United States indicate that approximately 45,000,000 people in the United States are inadequately fed today. Are the same conditions present in Canada? The answer is decidedly, yes.

CANADIAN DIETARY SURVEYS

During the past two years four dietary surveys have been made by the Canadian Council on Nutrition of the Dominion Department of Pensions and National Health—at Halifax, Quebec, Toronto, and Edmonton. A preliminary report of these dietary surveys was published in May, 1941.[1] Individual records of the food consumed by the different members of the family were kept for 75 to 100 families at each city. Three of the surveys involved families in the low income class, the incomes ranging from $500 to $1,500 per annum. The survey in Toronto involved a middle income class, with family incomes ranging from $1,500 to $2,400 per annum. The results are enlightening.

On the whole the mothers and the teen-age children were the most poorly fed, followed by the younger children, the husband almost invariably being the best fed individual in the family. Really deplorable deficiencies in many of the food essentials were encountered in the majority of the individuals studied. At Halifax the most important findings were marked deficiencies in the intake of calcium by the children, and of the vitamins, especially thiamin, by the whole group. For instance, the calcium intake of the children was approximately only 50 per cent of the desired amount, while the average adult intake of thiamin was less than 200 I.U. per day, which is about one-third of the dietary requirements. In Quebec the calcium intake again was very low. The

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teen-age children had the lowest intake, the boys in this group having an average intake of 49 per cent of the standard, and the girls 41 per cent. The women, teen-age girls, and the children under 11 years were not receiving sufficient iron, and the intake of thiamin was definitely inadequate. In Edmonton, no less than 20 per cent of the individuals studied got only a little more than half the food they needed. Forty per cent got three-quarters of their needs, and only about 40 per cent of the people studied were adequately fed. The most extreme deficiencies found in a large proportion of the individuals studied were calcium, iron, thiamin, and vitamin C.

Is this poor feeding due to financial difficulties and inability on the part of the people to procure the necessary food? A study of the foods purchased by the families in the lower income groups indicates that a marked dietary improvement could have been obtained in most instances by more intelligent expenditure of the available money. The results of the Toronto survey, which was on families having yearly incomes between $1,500 and $2,400, have a bearing on this. Although these people obviously had sufficient money to purchase a diet adequate for health, the study showed that there was widespread deficiency of thiamin, and the quantities of vitamin C could not be regarded as adequate. Marked deficiencies in the intake of calcium and iron were found with the women and of calcium with the teen-age girls. These studies show that there is an urgent need for nutritional education in Canada.

EDUCATIONAL PROGRAMS

What has been done in Canada in this regard? First, in spite of the tremendous government expenditures on the war effort, the greatly increased taxes on the middle and well-to-do classes, the greater calls that have been made for war charities, and the drive to put every possible cent into war savings certificates—the nutritional educational efforts in Canada have been expanded rather than curtailed during the past two years. Just before the outbreak of war a booklet was prepared by the Canadian Medical Association and the Canadian Life Insurance Officers Association on *What to Eat to Be Healthy*. This little booklet in colors, of sixteen pages, outlines the fundamental principles of proper nutrition and indicates in a practical way how these nutritional requirements can be met. One and a quarter million copies of these booklets have been distributed, and a third edition of 125,000 copies is now in press.

Some 40,000 colored posters illustrating the fundamental principles of nutrition by means of attractive pictures of children at play were printed by the Canadian Medical Association, the Canadian Life Insurance Officers Association, and the Department of Education of the Province of Ontario. These were distributed in the schools of Ontario and have proved quite valuable in drawing to the attention of the children the importance of proper nutrition.

Shortly after the outbreak of war a booklet entitled *Food for Health in Peace and War* was prepared. This booklet tells the housewife how she can best spend her money to get optimum nutrition at the lowest cost. It was produced under the auspices of the Canadian Medical Association, with the assistance of the Canadian Life Insurance Companies in Canada and the Canadian Red Cross. One and three-quarter million of these have already been distributed and a second edition of three-quarters of a million, has just been printed. This makes in all two and a half million copies. The total number of homes in Canada is estimated to be just two and a half million.

The Federal Department of Pensions and National Health, through its Coun-

cil on Nutrition, the Canadian Public Health Association, the Canadian Red Cross, the Health League of Canada, the Canadian Dietetic Association, the Canadian Home Economics Association, and other national and local organizations are all taking an active interest in our national nutrition problems.

THE PROBLEM OF MINOR DIETARY DEFICIENCIES

From a national standpoint we are not interested in the obvious deficiency diseases. For instance, in the Hospital for Sick Children, Toronto, which hospital has approximately 100,000 attendance a year, we had 154 cases of rickets in 1925. Ten years later we had 4 cases. Children with scurvy number only six or seven a year. Frank pellagra and beriberi are unknown. Our problem today is not these obvious deficiency diseases, which are the end result of a marked deficiency—comparable in the tuberculosis problem to a patient dying of tuberculosis—but we are concerned with the minor dietary deficiencies which carried on over a period of months and years definitely affect the resistance against disease, vigor and efficiency of the individual. Recent work by Kruse [2] indicates that certain changes in the epithelial tissues of the conjunctiva are quite prevalent and that these changes can be cured by the administration of large amounts of vitamin A. When one realizes that this condition of the epithelial tissues of the eye may be simply a reflection of the condition of the epithelial tissues throughout the whole body, one can readily see the possible importance of this discovery from the standpoint of the general health of the body. Also, recent work [3] has indicated that commonly encountered eye symptoms, such as photophobia, watering of the eyes, eye fatigue, and headache can be caused by a lack of riboflavin and respond readily to riboflavin therapy. The effect of an insufficient amount of thiamin on both the physical and mental state of the individual has been clearly demonstrated.[4] The deleterious effect of an inadequate supply of vitamin C on the healing of wounds has recently been emphasized.[5] These are simply a few examples of how a diet which although adequate for average health may still not supply those food essentials necessary for the highest possible level of health and efficiency.

CURRENT RESEARCHES

Although the acquisition of our scientific knowledge of the nutritional requirements of the human body has far outrun its practical application, still there is need for further investigation. In fact no field of medical research has been so fruitful as this study of the nutritional requirements of the body. Recent work on the action of certain of the vitamins goes to the very foundation of our physiology.

Some nutritional studies being done in Canada are probably of interest to this group. Extensive work has been done by Dr. McHenry of the Connaught Laboratories of the University of Toronto showing the interrelationship of the various members of the vitamin B complex.[6]

A study has been made by Dr. T. G. H. Drake of the Hospital for Sick Children, Toronto, on the vitamin C supply of the Canadian people. Berries, melons, and some fresh vegetables, available in the summertime, supply considerable amounts of vitamin C. Unfortunately during the storage and processing of many of our fruits and vegetables common to both Canada and the United States, a large proportion of the vitamin C originally present is lost. During the winter months the lower income class depends almost exclusively on potatoes, cabbage, turnips, and tomatoes for its vitamin C. True, citrus fruits are widely available in Canada, but it is

questionable whether they are within the reach of many in the low income class. It is doubtful, therefore, whether any great number of our Canadian people are getting a diet adequate in vitamin C during the winter months.

Another study being undertaken at the present time is on the national supply of the vitamin B complex. A lack of the various members of the vitamin B complex is apparently quite widespread. How can this best be corrected? Wheat is an excellent source of many of the B vitamins. Yet, unfortunately, in the milling process five-sixths of the vitamin B_1 is removed and a large percentage of the other B vitamins. So here at once is a problem. How can wheat be milled so that it will retain the B vitamins in a much larger amount than is at present the case with white flour? This is the problem on which we have been working in conjunction with some of the millers and Dr. L. H. Newman, Chief of the Cereal Division of the Department of Agriculture at Ottawa. I am happy to say that we have succeeded in producing a white flour—not an 'off color' flour, but a white flour—which retains two-thirds of the vitamin B_1 originally present in the wheat, and an increased amount of other members of the B complex. To give you an idea of what this may mean—if this flour were used in place of the ordinary white flour in Canada, it would give the people of Canada during the course of one year many million dollars worth of the various members of the B complex at no additional cost. Steps are under way by the millers of Canada in conjunction with the Federal Department of Pensions and National Health and the Federal Department of Agriculture to put these findings into practical effect.

In conclusion, it is of interest to note that the military authorities in Canada are aware of the importance of applying modern knowledge on nutrition to the feeding of the Armed Forces. The Canadian Army, Navy, and Air Force rations have been devised to supply all the nutritional elements required in amounts adequate for health.

SUMMARY

Nutritional surveys conducted across Canada by the Canadian Council on Nutrition of the Department of Pensions and National Health indicate that a very considerable proportion of the Canadian population is not consuming a diet adequate for health.

While this condition may be due in some measure to low income, it is evident that lack of knowledge of the principles of nutrition is a most important factor.

Nutritional education work is being actively carried out in Canada. It is evident that there is widespread interest by the women of Canada in this problem of nutrition, and our efforts are falling on fertile soil.

Laboratory and clinical studies are being conducted which are shedding further light on our nutritional problem in Canada.

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Public Health Nursing in National Defense*

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IT is a truism that total war means total defense, since a whole population and all the resources of the country are involved. It is an obvious corollary that no individual, no profession, no agency can plan or act in isolation. In fact, only to the extent that planning and acting are interrelated and conceived of and carried through as part of the total scheme will national defense be accomplished as a whole or in any area of activity.

Inherently, public health nursing, along with all nursing and all other professions concerned with the health and welfare of human beings, is part of national defense in peace or war. Two years ago, or even a year ago, that was a relatively comfortable resting place, and it is still true that these peacetime services which save lives and build for health and happiness are an important part of national defense and thereby must be protected. But today it is also clear that we must be actively concerned with what is different: What part may public health nursing play in national defense with preparation for war as a central concentration point?

We have been told by leaders in the public health movement that the public health nurse is a primary agent in health protection and health promotion. In October, 1937, Dr. Thomas Parran, in his paper entitled "Public Health Nursing Marches On," presented at the National Organization for Public Health Nursing Silver Jubilee Dinner, enumerated the major health problems of this country, with the recurrent refrain: "The public health nurse must bear the brunt of the battle." If that was true before the present need for acceleration of defense activities, it now is multiplied a hundredfold. It is therefore our responsibility to accept the obligations placed upon us by bringing to bear all of our past preparation and experience in analyzing how and when we can put public health nursing potentialities at the service of this extension of the health battle as it is affected by national defense.

NURSING IN DEFENSE AREAS

Let us review what definite action has already taken place immediately bringing public health nursing into the foreground. On March 1, 1941, the emergency health and sanitation bill (H. R. 3204) was passed, providing funds to supplement work in defense areas—in the extra-cantonment zones and areas around defense industries—this money to be administered under the U. S. Public Health Service. As far as

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public health nursing was concerned, this meant the finding and placing of 65 qualified public health nurses; and, with the additional appropriation of July, the total number was brought to 115. In addition, 90 more are needed at once.

In the recruitment program first consideration was given to qualifications to be adopted under the merit system which would be in accordance with our present generally accepted standards. That this was accomplished is in itself a landmark and a guidepost. These qualified public health nurses were primarily sought from private agencies and from approved public health nursing programs of study. Obviously, it would have been defeating the purpose of the bill to take them from vital defense areas. Also in view of the effort of recent years under the Social Security Act to strengthen official health agencies in order to build up basic health protection within this country, they were not recruited from health departments. Again, thinking in terms of the long point of view, this has resulted in a distribution of public health nurses, the majority of whom have been connected with urban services, to rural areas wherein exists the greatest need. The splendid, generous, immediate response of agencies and nurses is a gratifying but not unexpected indication of awareness of the issues involved. Evidently this must be looked upon as only the first call!

Since for the most part these 115 nurses had had no previous experience in an official agency, to say nothing of working under the conditions involved in defense areas, the U. S. Public Health Service has wisely developed a one month orientation period in Washington for all the professional personnel to be employed under the emergency health bill. It is interesting to note that this group has included doctors, sanitarians, bacteriologists, and laboratory technicians, as well as public health nurses, since the Public Health Service is selecting the type of personnel requested by state health departments as most urgently needed. The primary purpose of this period of one month is to give these professional groups a knowledge and understanding of the policies and procedures of the Public Health Service, particularly as these relate to their own professional activities. Also it includes a presentation and discussion of the relationship of this new group of health workers to the state and local health agencies and to other federal agencies that may be working in the territory. Emphasis has been laid on special health problems occurring in connection with migrating populations and defense industries, such as problems of sanitation, syphilis, gonorrhea, and industrial health.

After the orientation period for each group is over, the next step is their placement. Public health nurses are sent to any territory only on the request of the state health department. Since these requests exceed the available supply, the responsibility for relative quantitative distribution has to rest with the district staff of the Public Health Service in terms of the relative urgency of need. The state health departments, after assignment of the personnel to them, have provided two weeks' orientation so that these new workers can become acquainted with the specific policies and procedures of the state in which they are to work. The next step is the final assignment to the specific territory within the state. Again this has been the responsibility of the state health departments after they have had direct contact with the individuals. Thereafter, these workers have been under the administration and supervision of state health departments, the district staff of the Public Health Service acting only in an advisory capacity through the state departments.

FEDERAL FUNDS FOR NURSING EDUCATION

The most recent federal action was the passage on July 1 of legislation which included the appropriation of $1,200,000 for nursing education. The effect of this on public health nursing has been both direct and indirect. It was the intention of the Act that the largest proportion of the moneys should go to increase the number of students in schools of nursing by enlarging their facilities. There can be no disagreement that this is the emergency need—more and better qualified nurses available for all types of professional service. Public health nursing represents one of the services that will greatly benefit thereby. Direct appropriations are also available for the more adequate preparation of public health nurses by increasing opportunities for student field experience in connection with approved public health nursing programs of study. At this time no report is available as to the allocation of these funds for public health nursing or the increase of students resulting.

Since the last World War there has been an accumulated emphasis on the qualitative and quantitative increase in public health nurses, an emphasis tremendously accelerated during the last emergency—the depression. Our hopes and our efforts in this direction assumed the proportions of reality through the Social Security Act. As we look back on the decades before 1935 we realize that in these last few years preparedness has been going on in the whole public health program, although it received its impetus from the actualities of a peacetime need. Through appropriations to state health departments, including approximately 4,220 stipends, the quantity, quality, and distribution of public health nursing personnel have been increased beyond anything experienced during previous years. Now, with the tying-in of these appropriations with merit systems, there is a substantial framework set-up for personnel and services which gives the soundest foundation as preparation for defense. One is tempted to be philosophical at this point. Certainly the time for health preparedness is in times of peace.

Let us look again at this question of quantitative increase in public health nursing. We can be thankful that there are approximately 22 per cent more public health nurses now at work than in 1931. However, it should give us pause that the latest figures just assembled for 1941 show a decrease in the number employed, for the first time in 4 years. This is slight, only 172, and there are various explanations for it as one breaks down the detailed figures. But the fact remains that at the very moment when it is most urgent that the trend should continue upward, it is tending in the other direction. Also there has been an appreciable decrease in the number of public health nursing students this year in the vast majority of university programs of study. To my mind, this constitutes a priority. We must organize our forces on every front so that there are constantly more, not less, public health nurses qualified and employed if we are to meet the present need and future emergencies in relation to national defense.

PROBLEMS DUE TO DEFENSE NEEDS

Certain phases of public health nursing content and service have a direct relationship to our effectiveness in national defense. It is possible here to give only a skeleton outline of the health problems that are accentuated by the war situation, without reviewing the whole gamut of public health nursing content—each part of which in the last analysis has to do with health protection and health promotion, and there-

fore ultimately with the lives and morale of the human beings who make this a country worth defending. Again, those in the public health and medical professions are fortunate in that their concern with these health problems antedates any specific question of war defense. Some of these problems have received special emphasis growing out of the depression and the advances in scientific knowledge. In still others the impetus has come from the material in the National Health Survey. This has brought us face to face with inescapable facts which have given a renewed vigor and determination to our attack.

Now we find nutrition, maternal and child health, the acute respiratory diseases, tuberculosis, the venereal diseases, and all other communicable diseases taking on new significance because of their definite relationship to national defense—in civilian life, in the life of enlisted men, and in the special health hazards of actual war. In each one of these health areas, whether through services in the home, clinic, health center, school, or industry—in the usual community situation, in disaster, or in defense territories—the public health nurse has a unique contribution to make in strengthening our national health defenses.

Other health problems that have been receiving more attention in the last few years must be put on our list in the light of preparedness. Under the leadership of the Children's Bureau and under Title V of the Social Security Act, we have been concerned with developing adequate preventive and treatment services for crippled children. It has been clear that public health nurses as individuals and as organizations have not been equipped to respond adequately. Now preparedness for what may come puts orthopedic services in the forefront of medical and nursing care that may be needed both within and outside of hospitals. Public health nursing, through the Children's Bureau, the National Organization for Public Health Nursing, state departments of health, and local agencies, is mobilizing to fill this gap in our preparedness. Institutes, postgraduate courses, scholarships, and special orthopedic consultants are some of the forms by means of which this mobilization is taking shape.

THE INDUSTRIAL WORKER

Only within the last few years has the public health movement as a whole really incorporated industrial hygiene into its blueprint for an all-out health program. Again we find that the first steps for defense took place before the threat of war. But many more steps now need to be taken—and faster. The health and efficiency of any worker, whether in a defense industry or not, represents the strength or weakness of the nation, both because those who are employed are the vast majority of our adult population and because on them rests the economic structure of the country and the stability of the family.

In public health nursing when we talk of our part in industrial hygiene we think first of the nurse actually working in industry. She is in the first defense line in protecting the health of the industrial worker. Locally and nationally this is being recognized. The Public Health Service, through the assignment of one of its public health nursing consultants to its Division of Industrial Hygiene and the National Organization for Public Health Nursing by adding an industrial nurse consultant to its staff, are actively assisting in the extension of industrial nursing. Such services are crucial in defense industries to which the Public Health Service is giving special attention at this time. But both of these national bodies are also concerned with public health nursing services related to the health of *all* industrial workers. Universities conducting public health nursing programs

of study are being encouraged and helped to include courses for industrial nurses already employed, as preparation for those who wish to enter this field and as part of the basic preparation for all public health nurses. It is clear therefore that we already accept the fact that the nursing service within industry itself, whether a defense industry or not, is one of the spots where public health nursing is closely related to national defense. Our responsibility is equally clear—to assist in the development of such services through every available channel within our own sphere of influence and activity.

We are beginning to recognize more than that. The health of the worker cannot be protected or promoted merely within the walls of the establishment where he is employed. He is a member of a family, living in a house (we hope!) in a community. Where he lives, how he lives, with whom he lives, affects his health and well-being and therefore his work as he in turn affects the health and well-being of his total situation. In peace or war every public health nurse must become an industrial health worker in relation to the employed members of her families. She must know the industrial health hazards in their work environment, and what industrial health services are available to them. As part of her own service, she must be concerned with the way that the family, the home, and the community situations affect the health of the worker, and vice versa.

Furthermore community public health nursing agencies offer practically the only possibility of meeting the needs of small industries. Also they should so relate all their services to the medical and nursing programs organized within industry that they supplement each other without gaps and duplications. That is what all public health nurses must be prepared for and work for if those who are among our greatest human, economic, and defense assets are to be kept well and efficient.

When we take a long view of what is involved for posterity in defense and preparedness we know it goes beyond those engaged in military activities and industrial workers. It means family life and particularly healthy mothers, babies, and children. Therein lies the future of any country if it is to have a future. This is accepted as our concern and responsibility even though there is still much to be done toward developing more adequate maternal and child health services. Thanks in large part to the public health nursing program of the Children's Bureau, we already have made tremendous advances. Whatever adjustments and changes may be necessary, let us never forget that defense relates to the long future as well as to the present and the near future, so that we are not sacrificing one for the other.

There is an aspect to maternal and child health services that has to do with the immediate present growing out of the war situation. Migrating families, including mothers and children and prospective mothers, are gathering around the cantonments and defense industries with little or no provision for anything that makes living healthy for anybody, under conditions that particularly endanger the lives of babies and little children. Federal, state, and local agencies are at work on how to meet this health menace that is being created.

Two other aspects of public health nursing content and service are accentuated in the light of the present situation and future possibilities. I am not sure but that these should come first on the list, for certainly they are now recognized as an inseparable part of any public health nursing. To give service in any health area includes relating it to the psychological, emotional, and social situation—to the need and capacity of the individuals and families involved and to their immediate health and

sickness problems. There is current terminology applied to these aspects of public health nursing—mental hygiene and bedside care.

MENTAL HYGIENE

The ability to help people to adjust, and to develop their capacity to take responsibility, must be part of the professional competence of all health workers. Any situation that threatens essential security, be it national, local, or individual, necessitates increased attention to mental health and adjustment. This attention and ability must be part of every professional service, every professional relationship. We have been saying this for some time. Now the only difference is that the threat of insecurity is greater and it becomes a question of national morale and stability as represented by each individual, each family, each community. Also there are special problems around the rejected draftee—health and psychological problems in which the public health nurse plays her part with other professions.

BEDSIDE CARE

Bedside care—what a controversial issue that has been in public health nursing in the past! To be or not to be—and how much? Most of the tumult and shouting on the subject of bedside care as an *issue* has died, although there still remains the economic problem of producing it in the amounts and in the places that it is needed for life saving and for health.

It is safe to say that national defense and preparedness for the possibility of war in this country require that every public health nurse, more than ever before, must accept as part of her professional responsibility, when the need for bedside care exists in any home, to give it or see that it is provided; to demonstrate it and supervise the care given by someone else; to assist in teaching home nursing to individuals and groups.

The future health of anybody depends on the care he gets when he is sick. That has now become one of the first lessons in public health practice. Also, sickness usually starts and ends at home. The hospital may intervene between this beginning and the convalescence, but still the home bears a crucial proportion of sickness care and may be the predominant factor in recovery. If this is true in peace times, I do not need to point out the crescendo if war with its possible accompaniment of epidemics comes within our gates.

These are all aspects of the total public health nursing program that must be continued and extended because they are vitally and directly related to national defense today. They are essential whether we are concerned with the strength of our national bulwarks for resistance, for attack, or for preservation. But what of other questions of preparedness and responsibilities for the possible eventualities of tomorrow? For defense also means a planned organization of forces to meet any emergency. What steps are we taking and should we take toward this end?

COMMUNITY PLANNING

In the past, we have talked a great deal about community studies and organization so that public health nursing programs would really be developed and continued only in the light of revealed health needs and existing resources; so that gaps and duplications in services would be eliminated; and as a final goal, so that there would be a community plan with coördination of services, and in some instances a combination of agencies. What actually has taken place besides talk—talk in committees, on the platform, in publications? Something *has* happened in various localities and certainly an aware-

ness has been developed so that we have accepted a common goal. Public health nurses and agencies are playing an active part in many types of community councils and an increasing number of surveys are being made with progress in the fulfillment of their purpose. But by and large as we look over the country, I wonder if productive action has been in proportion to the talking. In any case, preparedness calls for more action, more leadership, and more statesmanship. There is no place for agency or professional separateness and there will be, or should be, no money, private or public, for any services not absolutely essential and efficiently administered.

Some services must be extended and new ones developed; others contracted and combined; and some eliminated within agencies and within communities if public health nursing is to be used to its capacity in meeting the present situation and any future emergency. Let us not wait until the situation forces this issue. Let us take the lead in putting our own house in order as part of our organized preparedness. Already we see this leadership being exerted by public health nurses and agencies in many places. But this kind of preparedness calling for critical analyses and courageous action that may mean adjustment and change, must take place in every locality and in every state.

The specific activities of the public health nurse in time of war or disaster have been described by Elizabeth Fox in a recent paper, "An Analysis of Defense Needs" (*American Journal of Nursing*, June, 1941), and they are therefore not included in the discussion.

THE NON-PROFESSIONAL WORKER

Now, and if war should come, we know that every ounce of nurse power must be conserved and increased for those services and responsibilities that can only be safely placed in the hands of a professional nurse. This necessitates the use of various types of subsidiary workers and of volunteers. The use of volunteers is not new to public health nursing. It has been bound up with our historical development. But in actuality we still may be somewhat limited in making the most productive use of them. Now the situation demands not only imagination but the organization and direction of the use of both of these non-professional groups. If we act wisely and positively, and take the initiative in charting their use in public health nursing, it may be one of the real gains coming out of the destructive forces of war.

All that has been said in the past about their selection, preparation, assignment to suitable tasks and professional supervision, as basic safeguards to those whom we serve, must be said again and again in this emergency. These safeguards must be part of any community plan for their use in services that affect the health and welfare of human beings. Are we prepared to plan and act so that wherever the volunteer and subsidiary worker can be safely used in public health nursing today, they will be used? Have we an obligation to see to it that this happens, as part of our responsibility for the extension of our own professional services? If we do not meet this responsibility through our own leadership, it may be taken away from us with the possibility of resulting chaos.

CONCLUSION

There is really nothing vague or unknown about the part of public health nursing in national defense. What is new is the urgency of the situation with spot lights on certain aspects of our services which need more concentration and extension and, possibly above all else, on the necessity to evaluate and organize public health nursing for effective performance on a community basis

when and where the need is greatest as part of defense and preparedness for war within this land of ours.

Ever since we have been public health nurses, we have heard challenges. We have challenged ourselves and each other, and everybody has challenged us. Today and tomorrow present many of these same challenges as I have indicated, but there is a difference. There is more at stake and less time. It is *now* that we must be prepared for adjustment, growth and action. *Now* we must make sure that the particular professional competence of public health nurses is utilized and increased quantitatively and qualitatively in direct relation to our specific opportunity and contribution to the saving of lives and the protection and extension of health for the defense and the future of this country.

Immunological Reactions in Rickettsial Diseases with Special Reference to the Time of Appearance of Antibodies*

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ALTHOUGH the Weil-Felix reaction has been widely used as a diagnostic aid in typhus and spotted fever since its discovery in 1915, only isolated facts are known concerning the presence of other antibodies in these diseases. Early in the study of typhus fever, Epstein [1] reported that convalescent sera agglutinated antigen prepared from infected lice. This observation was confirmed by Zinsser and Castañeda [2] who found that patients convalescent from murine typhus agglutinated European as well as murine rickettsiae. It was shown by Castañeda [3] that the agglutination of proteus organisms by convalescent typhus sera could be explained on the basis of there being a common antigen in rickettsiae and proteus bacilli. This he found to be a specific, soluble substance, probably a polysaccharide.

Opsonins in typhus fever as well as complement-fixing antibodies were studied by Castañeda.[4, 5] He noted that opsonins appeared in infected guinea pigs as early as 96 hours after inoculation, and that they persisted in man for many years after infection. Complement-fixing antibodies were present in human convalescent sera as long as 6 years after infection. More recently, Bengtson in typhus and "q" fever studies has found that complement-fixing antibodies are present in guinea pigs as early as the 6th and 9th days respectively after the onset of fever,[6, 7] and that they persist in recovered typhus patients for several years.[8]

No correlation has been shown to exist between the Weil-Felix and the presence of rickettsial agglutinins and protective antibodies.

The aim of the work here reported was to find (1) the time of appearance of these antibodies, and (2) their relation to each other and their persistence in the convalescent animal. Rabbits were chosen as the most convenient animal, since it was found some years ago in work with Dr. Zinsser that they produced antisera of high protective power as a result of inoculation with cultures of typhus and an eastern strain of spotted fever.

METHODS AND MATERIALS

The technic followed and the results obtained were the same for both types of rickettsiae. Cultures grown on agar in 8 x 3.5 in. bottles with chick embryo

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tissue were used as inoculum. The infected tissue was removed and suspended in phosphate buffer solution at a pH of 7.1 to 7.4, just prior to injection. Antigen for the agglutination tests was prepared by differential centrifugation of ground culture material suspended in 0.2 per cent phenol or formolized phosphate buffer. The agglutination tests were performed by adding antigen to the serum dilutions in hanging drop slides and incubating for 4 hours at 40° C. Rabbits weighing about 5 pounds were employed, and injections were given by the intraperitoneal route. Twenty-five were used for the spotted fever studies, 4 being selected for close observation, with frequent bleedings for agglutination and protection tests on the serum of each animal. Twelve rabbits received inoculations of typhus, and all were followed in a similar manner. Some of the animals received weekly injections for from 4 to 20 weeks, others were given two or three injections only, at intervals of 3 days. Protection tests were performed by mixing 1 ml. of virulent passage blood with varying amounts of rabbit serum, after it had been kept several weeks in the icebox, and injecting the mixtures intraperitoneally into guinea pigs.

RESULTS

The sequence of appearance of the antibodies studied was always the same, although individual variation among the rabbits in the actual day of appearance of the antibodies was found. The rickettsial agglutinins appeared first, from the 5th to the 8th day after the first injection; next the proteus agglutinins, from the 7th to the 14th day. A few rabbits did not develop a Weil-Felix reaction; all developed rickettsial agglutinins and in high titer (1/1,000 to 1/10,000). It was found on several occasions that, in spite of a high titer of rickettsial agglutinins, whole rabbit blood was infectious for guinea pigs as late as the 14th day after the first injection. Between the 12th and 18th day, when the blood no longer contained live virus, the protective antibodies appeared (see Tables 1 and 2). Once the protective antibodies appeared, they

TABLE 1

Typical Immune Response of a Rabbit Following 3 Injections of Spotted Fever Rickettsiae at 3 Day Intervals

Rabbit No. 3 S.F.

Time of Bleeding	*Agglutinin Titer*		*Blood Infectious*	*Protective Antibodies*	
	Weil-Felix	*Rickettsia*		*Amount of Serum*	*Results*
1 week	0	1:80	yes	1.0 ml.	absent
2 weeks	1:160	1:1,280	no	1.0 ml.	present
				0.5 ml.	present
3 weeks	1:80	1:1,280	no	1.0 ml.	present
6 weeks	0	1:1,280	...	.....	.....

TABLE 2

Typical Immune Response of a Rabbit Following Weekly Injections of Typhus Rickettsiae

Rabbit No. 296. T.

Time of Bleeding	*Agglutinin Titer*		*Blood Infectious*	*Protective Antibodies*	
	Weil-Felix	*Rickettsia*		*Amount of Serum*	*Results*
1 week	1:80	1:1,280	yes	1.0 ml.	absent
2 weeks	1:20	1:1,280	yes	1.0 ml.	absent
3 weeks	0	1:1,280	no	1.0 ml.	present
				0.5 ml.	present
6 weeks	0	1:1,280	no	1.0 ml.	present
				0.5 ml.	present

were very potent. From some rabbits as little as 0.005 ml. completely neutralized 1 ml. of virulent blood. When a pool of serum from several rabbits was used, 0.01 ml. usually was required.

As to the persistence of these antibodies in the rabbit, it was observed that, despite the weekly injections, the proteus agglutinins dropped to zero in from 1 to 5 weeks, depending on the height to which the titer had initially risen. The rickettsial agglutinins, on the other hand, were maintained at a high level for many months, even in rabbits whose inoculations were discontinued. We are not yet able to state how long rickettsial agglutinins may persist in the rabbit; it is at least 7 months. Protective antibodies seem to belong in the same category. They appear to last as long as the rickettsial agglutinins. It is hoped that, by following rabbits for a sufficiently long time, it may be observed whether these antibodies last the same length of time. If they should disappear, it would then become necessary to determine the susceptibility of the animals to reinfection (see Charts I and II).

The application of these experimental findings to the immunity response of man to these rickettsial diseases may have its practical significance. Studies now in progress on human sera from a small number of cases of spotted fever have already shown interesting similarities. The proteus agglutinins in man are much reduced or disappear altogether during convalescence. Also, in the acute disease in man, as in the rabbit, rickettsial agglutinins have been demonstrated in the absence of a Weil-Felix reaction. This absence has usually been interpreted as signifying a poor prognosis in the human disease. On the other hand, our results in the rabbit indicate that a positive Weil-Felix reaction is not essential to immunity, and

Chart I

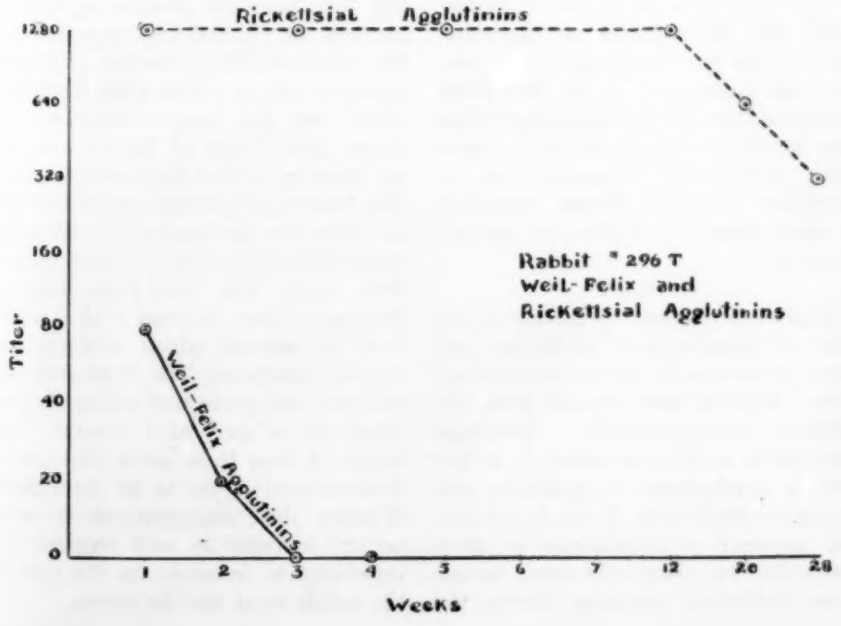
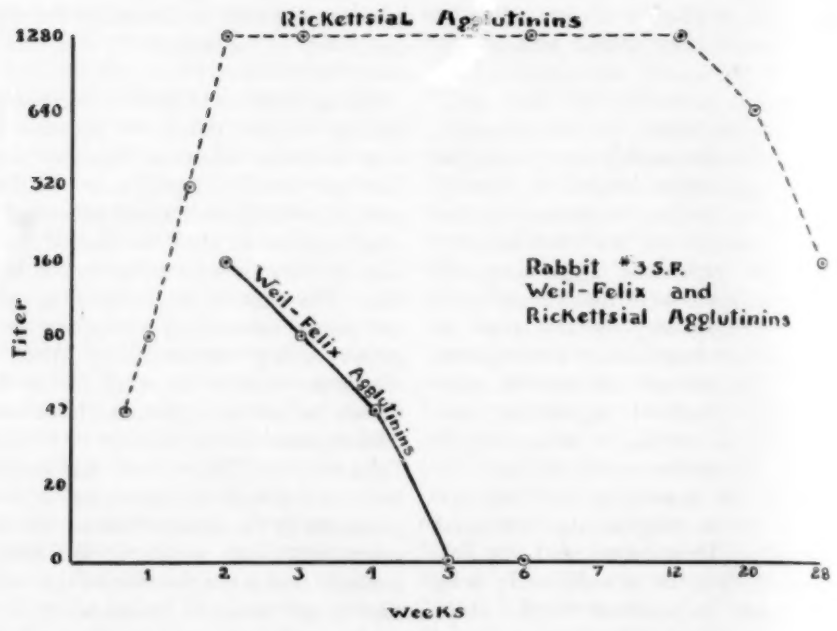


Chart II



that its absence does not influence the development of rickettsial agglutinins and protective antibodies.

A close study of a number of human cases will be required to determine whether the rickettsial agglutinins precede the appearance of the Weil-Felix reaction. If so, the rickettsial agglutinin test would prove valuable as a more rapid and specific diagnostic test in suspected rickettsial disease, especially in areas where both typhus and spotted fever occur.

SUMMARY

Studies were made to determine the time of appearance of antibodies and their persistence in typhus and spotted fever. Rabbits were injected with live cultures intraperitoneally. Bleedings were taken at frequent intervals to follow the development of agglutinins and protective antibodies. It was found that the sequence of appearance of these antibodies was always the same, though some individual variation among the animals in the actual day of their appearance was noted. The rickettsial agglutinins appeared between the 5th and 8th day; the proteus agglutinins between the 7th and 14th day after the first injection. The protective antibodies appeared last, at a time when the rabbit blood was no longer infectious for guinea pigs. Some of the animals did not develop a Weil-Felix reaction, but this absence of proteus agglutinins did not affect the development of rickettsial agglutinins and protective antibodies in high titer. The Weil-Felix reaction dropped to zero in from 1 to 5 weeks even in animals which continued to receive injections. The rickettsial agglutinins and protective antibodies persisted for as long as 7 months. The length of time these antibodies can be demonstrated is yet to be determined. Whether their disappearance is unimportant or coincides with renewed susceptibility to infection on the part of the rabbit must also be shown.

Efforts are being made to apply these findings to the study of sera from human cases of spotted fever.

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Public Health Degrees and Certificates Granted in the United States and Canada During the Academic Year 1940-1941 *

THE Committee on Professional Education of the American Public Health Association presents a report of public health degrees and certificates granted in the academic year 1940–1941. With the exception of the public health nursing tables, the Committee has included only graduate students enrolled in courses leading to graduate degrees and certificates. The basis for the record is *the number of students who received degrees* rather than the number of degrees granted in the specified period.

Graduate Students Enrolled and Degrees Granted in Public Health Engineering and Sanitary Engineering Courses in the Academic Year 1940–1941

TABLE 1

Name of University	*Number of Graduate Students Registered*	*Graduate Degrees Offered*	*Number of Graduates Receiving Each Degree*
Agricultural & Mechanical College of Texas	12	M.S.	2
		Ph.D.	0
Cornell University	3	M.C.E.	1
		Ph.D.	1
Harvard University	36	M.S.	30
		Sc.D.	1
Iowa State College	2	M.S. in San. Eng.	0
		Ph.D. in San. Eng.	0
Johns Hopkins University	5	Dr.Eng.	0
		M.C.E.	1
		M.P.H.	1
Massachusetts Institute of Technology	3	Sc.D.	0
		S.M.	1
New York University	36	M.C.E.	9
		Dr.Eng.Sc.	0

* For previous reports see A.J.P.H., Vol. 30, p. 1456; Vol. 29, p. 1338; Vol. 28, p. 863; Vol. 27, p. 1267; Vol. 26, p. 819; Vol. 25, p. 341; Vol. 23, p. 1124.

TABLE 1 (Cont.)

Name of University	*Number of Graduate Students Registered*	*Graduate Degrees Offered*	*Number of Graduates Receiving Each Degree*
Rutgers University	3	M.Sc.	2
Stanford University	4	Eng. in C.E.: S.E.	1
State University of Iowa	0	M.S. in San. Eng.	0
		Ph.D. in San Eng.	0
University of Alabama	0	M.S. in San. Eng.	0
		M.S. in P.H. Eng.	0
University of Illinois	4	Ph.D. in C.E.	0
		M.S.	0
		C.E.	2
University of Kansas	0	M.S. in San. Eng.	0
University of Minnesota	11	M.S.	1
		M.P.H.	0
University of North Carolina	11	M.S. in P.H.	4
		M.S. in S.E.	2
University of Toronto	0	M.A.Sc.	0
West Virginia University	0	M.S.C.E.	0
Total	130		59

Classification of Engineering Degrees Granted in the Academic Year 1940–1941

TABLE 2

	Number of Graduates Receiving Degrees	*Number of Schools Offering Each Degree*
Doctor of Philosophy	1	5
Doctor of Engineering	0	1
Doctor of Science	2	2
Doctor of Engineering Science	0	1
Master of Public Health	1	2
Master of Science in Public Health	4	1
Master of Science in Public Health Engineering	0	1
Master of Science in Sanitary Engineering	2	5
Master of Science	35	7
Master of Civil Engineering	11	4
Engineer in Civil Engineering	3	2
Total	59	

In the academic year 1939–1940, 131 graduate students were enrolled in public health engineering and sanitary engineering courses as compared with 130 in the academic year 1940–1941. Graduate degrees granted in the academic year 1939–1940 totalled 66 as compared to 59 in the year 1940–1941.

Enrollment in Public Health Courses and Degrees and Certificates Granted

(Exclusive of Engineering and Nursing Students)

Number of graduate students enrolled and public health degrees and certificates conferred during the academic year 1940–1941 by United States and Canadian universities. Unless otherwise indicated, courses require at least one year of residence. The professional background of the students is given where known.

TABLE 3

Name of Institution	*Total Number Graduate Students Registered*	*Physicians*	*Dentists*	*Public Health Nurses*	*Public Health Laboratory Workers*[1]	*Public Health Engineers*	*Sanitarians*	*Health Educators*	*Statisticians*	*Physical Educators*	*Entomologists*	*Public Health Nutritionists*	*Food and Drug Inspectors*	*Veterinarians*	*Pharmacologists*	*Instructors*	*Social Workers*	*Unclassified*	*Graduate Degrees Offered*	*Number of Graduates Receiving each Degree and Certificate*
DeLamar Institute of Public Health, Columbia University	21	19	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	Dr.P.H. M.S.P.H.	0 22
Harvard School of Public Health	51	41	3	..	4	..	..	..	..	..	..	..	3	..	..	..	..	..	Dr.P.H. M.P.H. C.P.H.	6 6 8
Johns Hopkins University	127	89	..	..	4	..	..	..	2	..	1	..	..	..	..	3	..	28[2]	Dr.P.H. M.P.H. Sc.D. in Hyg. Sc.M. in Hyg.	7 77 5 2
Loyola University	10	..	..	4	..	1	3	..	..	2	..	..	..	..	..	..	..	..	Dr.P.H. M.S.P.H.	0 1
Massachusetts Institute of Technology	33	4	1	..	5	5	..	18	..	..	..	..	..	..	..	..	..	..	Dr.P.H. M.P.H. C.P.H.	0 2 7
McGill University	10	5	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	..	D.P.H.[3] D.V.P.H.[4]	4 5
University of California	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Dr.P.H. M.S.P.H.[5] M.A.	0 (16) 1
University of Kentucky	25[6]	24	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	M.S.P.H.	4
University of Michigan	176	46	15	20	13	12	20	41[7]	4	..	..	4	..	..	..	..	1	..	Dr.P.H. M.S.P.H.	4 51

TABLE 3 (Cont.)

Name of Institution	Total Number Graduate Students Registered	Physicians	Dentists	Public Health Nurses	Public Health Laboratory Workers[1]	Public Health Engineers	Sanitarians	Health Educators	Statisticians	Physical Educators	Entomologists	Public Health Nutritionists	Food and Drug Inspectors	Veterinarians	Pharmacologists	Instructors	Social Workers	Unclassified	Graduate Degrees Offered	Number of Graduates Receiving each Degree and Certificate
University of Minnesota	17	13	1	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	M.P.H. M.S.	8 0
University of North Carolina	37	18	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	18	Dr.P.H. M.P.H. M.S.P.H. Ph.D. C.P.H.	0 5 8 0 3
University of Pennsylvania	44	19	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23	**Dr.P.H.** M.P.H. M.S. **Ph.D.**	**0** 11 10 **1**
University of Toronto	27	27	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	D.P.H.[3]	25
Yale University	42	25	..	2	2	..	1	10	2	..	..	..	..	..	..	..	..	..	Dr.P.H. M.P.H. Ph.D.	3 18 0
TOTAL	621	331	23	27	28	18	24	70	9	3	1	4	3	5	1	3	1	70		304

[1] This classification covers pathologists, parasitologists, bacteriologists, serologists, chemists, immunologists and technicians
[2] Among the unclassified 4 were student assistants in immunology, biochemistry, protozoölogy and medical entomology
[3] Diploma in Public Health
[4] Diploma in Veterinary Public Health
[5] M.S.P.H. granted to 16 students in the upper fraction of classes who had previously received the C.P.H.
[6] These students spent 36 weeks in residence during summer sessions
[7] Health and Physical Educators

Classification of Public Health Degrees and Certificates Granted in the Academic Year 1940–1941

(Exclusive of Engineering and Nursing Degrees and Certificates)

TABLE 4

Degree or Certificate	*Number of Graduates Receiving Degrees and Certificates*	*Number of Schools Offering Each Degree and Certificate*
Doctor of Public Health	20	10
Doctor of Science	5	1
Doctor of Philosophy	1	3
Certificate in Public Health	18	3
Master of Public Health	127	7
Master of Science in Public Health	86	6
Master of Science	12	3
Diploma in Public Health	29	1
Master of Arts	1	2
Diploma in Veterinary Public Health	5	1
Total	304	

In the academic year 1939–1940, 550 graduate students were enrolled as compared with 621 in the academic year 1940–1941. Graduate degrees and certificates granted in the academic year 1939–1940 totalled 331 as compared to 304 in the year 1940–1941.

Students Enrolled and Degrees and Certificates Granted in Public Health Nursing for the Year Ending June 30, 1941

Five thousand nurses studied public health nursing in the 27 programs of study meeting the approval of the Education Committee of the National Organization for Public Health Nursing during the year ended June 30, 1941. Baccalaureate degrees were granted to 339 of these students and masters degrees to 42. In the programs of study of 19 universities, certificates were awarded to 568 nurses.

There were four universities in which more than 400 public health nurses were enrolled during the year—Wayne University at Detroit; Teachers College at Columbia University, New York; New York University; and George Peabody College for Teachers at Nashville.

Table 5 indicates the enrollment and the number of students who received degrees and certificates for this period. These figures have been compiled by the National Organization for Public Health Nursing and are printed here with permission.

TABLE 5

Name of University	*Number of Students Registered*	*Number of Students Receiving Each Degree and Certificate*		
		Baccalaureate Degrees	*Masters Degrees*	*Certificates*
Catholic University of America	73	6	0	5[1]
Columbia University, Teachers College	517[2]	55	17	0[2]
Duquesne University	60	3	0	3
George Peabody College for Teachers	425	19	4	97
Indiana University	39	10	0	0
Loyola University[4]	183	3	0	12
Marquette University	86	1	0	12
Medical College of Virginia	38	0	0	22
New York University	1,310[5]	58	7	0

TABLE 5 (Cont.)

Name of University	Number of Students Registered	Number of Students Receiving Each Degree and Certificate: Baccalaureate Degrees	Masters Degrees	Certificates
Richmond Professional Institute, College of William and Mary	101	6	0	51
St. John's University	83	0	0	0
St. Louis University	91	9	0	0
Simmons College [6]	...	..	..	..
Syracuse University	173	3	0	20
University of California, Berkeley	94	31	0	53
University of California, Los Angeles	40 [2]	8	0	24
University of Chicago	74	2	0	0 [3]
University of Hawaii	8	0	0	6
University of Michigan	232	13	3	35
University of Minnesota	294	62 [7]	5	7
University of Oregon	84	7	0	49
University of Pennsylvania	313	11	1	37
University of Washington	112	14	1	24
University of Wisconsin [4]	29	3	0	0 [3]
Vanderbilt University	39	2	0	20 [5]
Wayne University	404	5	1	40
Western Reserve University	106	8	3	51
Total	5,008	339	42	568

[1] Certificates not granted but course meets in full N.O.P.H.N. requirements for certification.
[2] Does not include registration in summer session courses.
[3] Does not grant certificates.
[4] Newly approved in 1941.
[5] Estimated figure.
[6] No information.
[7] Each student granted a degree is automatically granted a certificate in public health nursing.
[8] Does not grant certificates, but course meets in full requirements for certification.

Summary of Students Registered and Degrees and Certificates Awarded to Nurses in 1940 and 1941

TABLE 6

	1940–1941	1939–1940
Nurses enrolled	5,008	5,139
Baccalaureate degrees granted	339	417
Masters degrees granted	42	47
Certificate granted	568	512

W. P. SHEPARD, M.D., *Chairman*

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THE NEW INTEREST IN ADOLESCENCE

NOT long ago we sat in on a discussion of the physiological and emotional aspects of adolescence. No great truths were uncovered and it is doubtful that anyone came away from the meeting much the wiser. And yet that discussion and others, formal and informal, did and will continue to do good. At the meeting in question, which was made up of only a few people, two things stood out squarely: First, it was noticeable that those who had weathered the storm of adolescence in their own children did not consider themselves possessors of authoritative knowledge because of such an experience. The second outstanding thing was that a charming young woman, too young to have any adolescent children and unmarried, did have some opinions and no small fund of information as to what is taught and being done in relation to adolescence; and she was listened to respectfully. This willingness of parents to admit ignorance and their concession that a knowledge of adolescence might be acquired as might knowledge of any scientific subject, leads one to hope that the recent interest in this matter is developing along sound lines.

Unfortunately, the adolescent is not amenable to analysis as is a sample of water or an autopsy specimen. On the contrary, in each individual, adolescence is a kaleidoscopic and complex thing, a maturation process compounded of chemistry and psychology, with maleness and femaleness and endocrines and emotions unsnarling themselves: a period of development and adjustment where a sense of insecurity darkens a childhood assurance of safety, where idols fall and independence beckons, where old interests are lost and the most enticing new ones are taboo. It is a beautiful and painful episode in human development and, fortunately or unfortunately, nothing like its glow and shadow will ever come again. And because of driving physiological impulses and emotions, and a natural intolerance of restraint, it is only with the utmost wisdom and tact that the adolescent may be steadied, guided, and brought finally to a haven of mental and ethical adulthood.

Heretofore the adolescent period has been regarded almost entirely from the standpoint of the parent, something with which fathers and mothers must contend as children grow up. The more modern and constructive approach considers the

problem as it relates to the millions of young people who are going through this process. The importance of seeing the problem from this standpoint cannot be overemphasized for in adolescence there occurs the final shaping of the adult personality, when character, sense of values, moral and ethical concepts are fixed in the mold. Naturally, the basis for many of these intangibles will already have been laid in the earlier years of childhood, and in a few instances children will go into adolescence already so seriously scarred nervously and mentally that not much can be done about it. On the other hand, some with more fortunate inheritance and environment, and perhaps with wiser parents, will already have so thoroughly established a background of emotional balance and sense of values that they will be only slightly disturbed no matter what confusion adolescence brings.

In any event, one must welcome the new and intensified interest in this subject. It is to be hoped that the recent evidence of an unemotional approach to this emotional subject will be continued. This will be difficult, for the cool tools of science tend to heat up and lose their fine edge when applied to the knotty problem of human behavior. Finally, it must not be forgotten that there are physical as well as emotional and ethical problems in adolescence: the young man or woman going into industry, the nutritional demands at this age, the matter of dental care, the shadow of tuberculosis, and the danger of the venereal diseases.

CUCKOOS AND PRAIRIE CHICKENS

GREENWOOD, in his *Epidemics and Crowd Diseases*, devotes a chapter to Charles Creighton and Edward Jenner. To Creighton, Jenner was anathema, and no good could or should have come out of the latter. One of the things that seemed particularly to infuriate Creighton was that Jenner, on the basis of one observation, reported certain nesting habits of cuckoos, and described the young cuckoo as being equipped with a hollow in his back and an urge in his being which made it practicable for him to oust his fledgling foster siblings from the nest to which, at most, the cuckoo had established only squatter's rights. Creighton doubted the whole business, in which apparently he was wrong, and, to put it mildly, he criticised Jenner for making such a sweeping statement on the basis of one observation, in which, in principle at least, Creighton was undoubtedly right.

This brings us to a recent news release of the U. S. Public Health Service in regard to prairie chickens and infectious encephalitis. The announcement refers to the encephalitis epidemic of last summer which was focused in the Dakotas, Minnesota, and in nearby sections of Canada. The news release mentions the previous establishment of mosquitoes as possible vectors of encephalitis, refers to the relatively low incidence of the disease in local horses at the time of the epidemic, and draws attention to the fact that this was "a heavy mosquito year in North Dakota." The announcement then proceeds, "It appeared, therefore, that mosquitoes were spreading the disease. This theory was strengthened by the fact that the epidemic was unusually heavy among adult males. Since the mosquitoes of this region which can transmit encephalitis were of the field varieties and since in this area the male population of working age has a greater exposure in the wheat fields than women, a warning against mosquitoes was issued."

"There remained, however, the question of the mosquitoes' source of infection. Discovery of the virus in the prairie hen is believed to be an answer, since the bird spends most of its life in the grain fields."

We know too well the traditions of the Public Health Service, and respect its workers too much to entertain any doubt that this whole matter will be explored further and exhaustively. In fact, we forecast confidently that it is going to be a hard year for prairie chickens. On the other hand, we must confess a somewhat Creightonish reaction to the phraseology of this one—observation announcement. We are not, of course, in position to say that one prairie chicken does not make a summer epidemic, nor can we forget that Jenner had nothing more than one cuckoo observation for the establishment of an important bit of natural history. Still we do wish there had been a little more caution in the Service announcement, a little more restraint. The bare facts constitute a good circumstantial case against the prairie chicken, but it is to be doubted that they should be indicted without further evidence. As a circumstantial case, we have no quarrel with it. But the news release as worded is, we think, not a good example to the young and over eager.

Credit Lines

A Selective Digest of Diversified Health Interests

D. B. Armstrong, M.D., and John Lentz, M.S.

By Way of Report

Another Health Education Institute is behind us. If the 480 "students" who were present could express themselves collectively, they would no doubt pronounce it (with little, if any, dissent) the outstanding Institute to date in the series. The proceedings were notable on many counts, but the one thing that particularly vitalized this year's sessions was the eager and alert participation of the various audiences. As a general rule, coaxing and priming are necessary to get group discussions under way, but speakers and panel leaders found the Institute audiences quick to respond, to question, and to challenge. This made for sessions that were lively, stimulating, and thought-provoking. Another feature of the Institute sessions that was decidedly welcome was the emphasis on the practical application of health education. In many sessions, comments similar to the following were heard: "My exhibit on diphtheria wasn't successful and yet I followed all the accepted technics of exhibit construction and display. Can't we discuss my problem and get at the facts?" And thereupon an analysis of the situation took place. It was reassuring to find that everyday problems could be explored and practical advice given as to their solution. We hope that future Institutes will also be long on practicality and short on theory.

A complete record of the 3 day program will be made available later with the publication of the monograph: *Proceedings of the Eighth Health Education Institute*. Hence a detailed report of the Institute in these columns would only be repetitious. But there are certain things that stand out in retrospect which the formal record of the Institute will perhaps not reflect. Thus, it would not be amiss to refer to some of them here.

First, a word about Dr. Hiscock. At the dinner meeting held prior to the opening session, he termed himself "the humble servant of the Health Education Institute." The extraordinary degree of planning and preparation that is necessary in organizing the Institute does require an "humble servant"—someone who is willing to see a thing through from beginning to end without shifting responsibilities to others. Dr. Hiscock devotes himself to this undertaking with something akin to reverence, and health educators who have profited by recent Institutes owe a debt of gratitude to Dr. Hiscock and his committee.

It is regrettable that a larger audience could not have heard Dr. H. A. Overstreet's address, which preceded the formal opening session of the Institute. His informed comments on how to lead discussion groups will no doubt bear fruit in many communities where the technics which he outlined can be put to use in meetings, forums, and the like. This speech led to a great deal of "cerebrating" on the part of the small

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dinner group, and Dr. Overstreet skillfully demonstrated that he could practise what he preached, as he drew from the audience question after question. He ranks with the experts of "Information, Please" when it comes to giving correct answers to difficult queries.

A lively demonstration of health educators at work was seen during the general session presided over by Dr. Mayhew Derryberry. Presented with a complicated situation involving a number of intensified health problems connected with army camps, the audience was asked to tackle the problems and offer possible solutions. It gave one a decided "lift" to watch the audience organize itself into committees and proceed without the slightest hesitation. Let's hope that actual problems facing health educators are solved as speedily and efficiently as Dr. Derryberry's problem-on-paper was solved.

The sessions on exhibits, conducted by Homer Calver and Dr. Bruno Gebhard, reflected much of the practical experience which these experts have had. If the excellent advice of Mr. Calver concerning the make-up of exhibits were followed, and if the common pitfalls enumerated by Dr. Gebhard were avoided, one would be less likely to go off the deep end when making exhibits. While on this subject, one is reminded of the very excellent group of exhibits displayed during the Convention. The commodious hall afforded a splendid setting, and appreciative crowds rewarded the exhibitors with a steady round of compliments. We do not recall seeing another group of exhibits as interesting, colorful, ingenious, and instructive as those of the U. S. Public Health Service, the New York State Department of Health, the Pan American Sanitary Bureau, and the National Foundation for Infantile Paralysis.

The clinic on printed materials conducted by John Hall ranks as one of the highlights of the Eighth (or any other) Institute. Mr. Hall added something new to this clinic by bringing an experienced newspaper editor before the group to analyze or evaluate certain health publications. The editor pulled no punches and, as a result, a completely unbiased estimate of a representative selection of pamphlets, annual reports, leaflets, etc., was obtained. Our mistakes were exposed and our virtues extolled with equal candor by the newsman. Many of us are now better equipped to tell our stories to the public—thanks to the editor and the hints that he gave about influencing public opinion or impelling desired action through the printed word.

From all sides one heard reports of other sessions equally as profitable and ably conducted as those just mentioned. The well filled notebooks seen were evidence of the fact that the Institute supplied its "students" with a wealth of new ideas and material that would be used to fertilize the growth of health education in cities, counties, and schools throughout the land. Those who were able to follow an uninterrupted schedule during the 3 day session might well feel that they had received the equivalent of a compact course in health education.

Various bits of news or casual observations connected with the Institute and the Association's meeting come to mind again as one reviews the Atlantic City gathering. For instance: The speakers at the final Institute session gave excellent resumés of the proceedings—by listening attentively one got the whole of the Institute in a nutshell from these adept "summers-up". . . . Dr. Alice Keliher's motion picture demonstration with high school students was a top-notch performance. Her ability to arouse boys and girls amounts almost to genius. How does she do it? We suspect the secret of her success lies in the fact that Dr. Keliher makes herself one of the group—"boys and girls together," so to speak. . . . Dr.

Harry Mustard's definition of health education, as given in his paper at the opening session of the Institute, is worth remembering: "Health education is that process or those procedures through which individuals are brought to a performance of those things beneficial to health" (slightly abridged). . . . The Motion Picture Theatre offered an excellent program of health films. This popular feature of the annual meeting was capably directed by Thomas Stowell and his assistants of the New York State Department of Health. . . . It is always good to see those three stalwart veterans of public health at the annual meetings: Sally Lucas Jean, Dr. Charles Bolduan, and Dr. James Hayne. . . . The dramatic display of photographs depicting life in war-torn Britain brought to mind that nation's dark days more vividly and realistically than all the foreign dispatches and broadcasts on the subject. . . . It was interesting to note the increasing use of "demonstration material" in exhibits: White mice, mosquitoes, and trichinae were displayed at three exhibits and onlookers were numerous. . . . Certain suggestions made by Dr. John L. Rice in his inaugural address aroused immediate interest—chiefly, his proposal that public health nurses give bedside care and that more emphasis be placed on health teaching in schools. . . . The exhibits, booklets, and posters of various federal agencies are setting a high standard as regards presentation of material, art work, and general appeal. One who remembers earlier efforts of the government agencies cannot help but marvel at the vastly improved technics employed in each of these media. . . . Any speech by Surgeon General Thomas Parran is an event of first importance, his utterances at the annual meeting being no exception. . . . There are some very pretty women in public health. The pulchritudinous element was larger than ever this year due to the charming Latin ladies who were present with their husbands, the directors of various Latin-American health services. . . . We heard some good advice about the use of colorful words in health copy. We were told to take a tip from the advertisers who "sell the *sizzle*, not the steak.". . . We shall long remember the unassuming manner, the refreshing modesty of Dr. Charles Armstrong as he accepted the Sedgwick Memorial Award from Dr. Thomas Parran. One of his remarks typified the spirit of the true scientific investigator: "I have only been doing my day's work." . . .

The Health Education Center conducted by Mrs. Mary Swain Routzahn rendered a splendid service to hundreds seeking advice on films, annual reports, posters, literature, and other publicity media. The extensive collection of source material on display contained the best examples of health publicity obtainable. Mrs. Routzahn and her associates are to be congratulated on their important contribution to the annual meeting. . . . Dr. Hiscock and others frequently spoke of the new leaders who are emerging in health education. Among those rapidly forging their way ahead are Robert Schmuck and Howard Ennes of the U. S. Public Health Service and Marjorie Craig of the Metropolitan Life Insurance Company. Mr. Schmuck has introduced fresh technics in exhibit making, Mr. Ennes has capably conducted a venereal disease information service, and Miss Craig has sought to utilize nursery school education as a part of the public health program. . . . The friendly spirit that pervades the Health Education Institute each year is another factor which contributes to the success of these meetings. If the registration continues to mount, this camaraderie is apt to diminish. Hard and fast rules regarding registration would seem to be in order for 1942!

"WHAT'S IN A NAME"

One of the keenest jibes yet taken at the expense of the jargon coiners is contained in a story credited to Superintendent Langworthy of the Gloversville, N. Y., School System. This story was repeated at the Health Education Institute by Dr. Dorothy Nyswander. It made such a hit with the audience that "Credit Lines" immediately sought a copy to run in these columns for readers who may have missed the story. Here it is:

"About 1900 a teacher at the University of Iowa brought a hen to class for teaching purposes. While this was quite an innovation at the time, the hen was simply a hen. About 1910 this hen had become a 'problem.' In 1915 it had become a 'project.' Around 1919 the hen was 'a unit of work.' By 1925 it had become an 'activity.' In 1930 it was 'the basis of an integrated program.' And lo! in 1936 the poor hen had become a 'frame of reference.' As 1941 draws to a close, the hen is an 'area' in a 'workshop.'!"

The social worker has his lingo that is just as meaningless to the outsider as that of the educator. Until we all speak the same language, the health worker will have to do the best he can to understand the fancy terminology of his professional associates!

AN "EDITORIALETTE": HEALTH EDUCATION IN A FREE SOCIETY

Health education is indigenous to democracy—to our free society, where initiative, judgment, and individual decision and enterprise still function—where it is still possible and indeed necessary to try to inform and persuade people as to what they should do for the benefit of themselves and the community. On the other hand, health education and indeed all education as we know it, are of disappearing importance in most of the rest of the world, where the "educator," turned propagandist, tells the people what to do, although even in Germany the chief propagandist is said recently to have lamented the fact that there were still a few people in his country who could not be told how to act, and live, and think.

Health education, and indeed all education, as we think of it in America, is not only an essential ingredient in the free democratic process. Today, more than ever before, it must play a vital part in sustaining and justifying our way of living. As Hutchins has said, "What the world needs, what this country must have, is free minds . . . minds informed by principles derived through human experience through the ages, minds that are open no matter what waves of change beat upon them." Such education, in all fields, including public health, is in the long run our chief defense against the growing trends toward socialization, collectivism, dictatorship and totalitarianism, both abroad and at home.

IN HONOR OF EHRLICH

A dinner in commemoration of the 30th anniversary of the discovery of salvarsan by Paul Ehrlich was held by the American Social Hygiene Association in New York City on October 11, 1941. Among those who paid tribute to Dr. Ehrlich's far-reaching research in the control of syphilis were Surgeon General Thomas Parran and Father Alphonse M. Schwitalla, Dean, St. Louis University School of Medicine. The guest of honor at the dinner was the 78 year old widow of Dr. Ehrlich, who has come to this country to make her home. Mrs. Ehrlich was presented with a check for $1,000 by Dr. Hubert S. Howe, Chairman of the Association's Committee on Research in Syphilis.

In a brief address Mrs. Ehrlich told of her husband's love for America and his desire to undertake medical research here. She also spoke of Ehrlich as a

man—how he was sometimes moved to tears when he read severe criticisms of his discovery and how he was accustomed to say that "scientific achievement depends upon four G's: Geld, Geduld, Geschick, and Glück" (money, patience, cleverness, and luck). A host of Mrs. Ehrlich's admirers wish her many years of happiness as she joins her daughters here to make her home.

This commemorative dinner was widely reported in the press and over the radio. Arrangements for the occasion were under the direction of Miss Eleanor Shenehon, with Joseph L. Stenek in charge of publicity.

HEALTH EDUCATION COURSE AT HOPKINS

The September–October number of the *Baltimore Health News* contains an interesting description of a course in health education for health educators given for the first time by the Johns Hopkins School of Hygiene and Public Health, March 25 to May 15, 1941. The course was conducted by Dr. William H. F. Warthen, Health Officer of Baltimore County and Lecturer at the School of Hygiene. Twenty-three students representing 14 states and 3 foreign countries were enrolled.

The course was carefully and thoroughly designed. Lectures and conferences covered such subjects as printed matter, radio, exhibits, motion pictures, meetings, and health campaigns. In addition to classroom activities, the students were taken on visits to radio stations, printing plants, and newspaper offices to gain first-hand information on broadcasting and the production of printed materials. Dr. Warthen's lectures were supplemented with talks delivered by newspaper writers and radio program directors.

The course is reported to have been highly successful. Enrollment will no doubt increase, as courses organized along the lines of this one are eagerly sought by health workers and teachers.

HOW GAY WERE THE "NINETIES"?

According to song and story there would seem to be only one answer to this question, which was posed by the Wisconsin State Board of Health in a recent issue of its *Quarterly Bulletin*. Looked at from a health angle, however, the Gay Nineties weren't so gay after all. For instance, the Wisconsin authorities point out, during those so-called good old days smallpox was rampant in their state, tuberculosis was striking at thousands, and cases of typhoid fever were mounting. Moreover, July 4th celebrations during the Gay Nineties were deadly affairs. A national count in one year during the era disclosed total firecracker casualties at close to 5,000—including 470 deaths.

Public health workers aren't apt to heave any nostalgic sighs for the Gay Nineties and we agree with the Wisconsin authorities that "we'll take these Forties, grim as the world looks"!

RE: CONFERENCES AND LECTURES

The Medical Information Bureau of the New York Academy of Medicine recently held a one day Conference on Health Education. This was the second in a series of annual conferences, the first having been held in October, 1940. These conferences are presented primarily as a service to the representatives of those official and voluntary health, medical, and social agencies in the New York City area who are interested in health education. The objectives of the Conferences have been stated as follows:

a. To evaluate critically the rôle of health education in present-day medicine and public health.

b. To define the rôle of such bodies as the New York Academy of Medicine in public health education.

c. To define the values and limitations of certain educational instrumentalities, including the radio.

Several of the principal addresses given at the 1940 Conference are now available in bound mimeographed form.

The addresses found in this publication include one by Alan Gregg, M.D., on the Function of Health Education in Present-Day Medicine with Special Regard to the Contributions of Physicians, Medical Schools, and Medical Organizations; one by Frank G. Boudreau, M.D., on The Function of Health Education in the Present-Day Practice of Public Health; and an untitled address by Henry F. Vaughan, Dr.P.H., dealing with the objectives of health education. A limited number of copies of this publication are available from the Academy, 2 East 103d Street, New York, N. Y. There is no charge for copies.

The 1941 Conference, held on November 18, included addresses by Edward J. Stieglitz, M.D., on The Rôle of Health Education in Present-Day Medicine (with special reference to its rôle in the promotion of well-being and in the retardation of degenerative diseases); an address by Edward L. Bernays on Psychological Barriers in Health Education, and an address by Allen Freeman, M.D., on Health Education by the Private Practitioners, the Voluntary Health Agency, and the Department of Health. Comments on the 1941 Conference will appear in a later issue of " Credit Lines."

Another notable and fundamental health education project of the New York Academy of Medicine is the series of Lectures for the Laity. These lectures have for several years been given for the benefit of the general public. The 1941–1942 lectures began on November 13, with an address by James Alexander Miller, M.D., entitled " Tuberculosis: The Known and the Unknown." Other lectures in the series are scheduled as follows:

Thursday, December 11: Mechanisms of the Mind. Tracy Jackson Putnam, M.D.
Thursday, January 22: The Freudian Epoch. A. A. Brill, M.D.
Thursday, February 26: Creatice Behavior in Child and Adult. Arnold Gesell, M.D.
Thursday, March 26: The History of Vitamin B. Norman Joliffe, M.D.
Thursday, April 23: The Newer Knowledge of Nutrition. A. J. Carlson, M.D.
(Note: Lectures are scheduled at 8:15 p.m.)

QUOTATION OF THE MONTH

" The mind can be ill-fed as well as the body. . . . Let us consider how many calories of truth we get, what protective vitamins can increase our resistance to propaganda, whence will come iron for the nation's blood stream. . . . What is a balanced ration for the mind? The science of nutrition tells folks how to better their laissez-faire eating. We might well do some research on laissez-faire thinking." Leon Whipple, September, 1941, *Survey-Graphic*

BOOKS AND REPORTS

A Symposium on Human Malaria —*Publication of the American Association for the Advancement of Science No. 15. Edited by Forest Ray Moulton. Lancaster, Pa.: Science Press Printing Company,* 1941. 398 pp. Price, $5.00.

This book is a symposium compiled from contributions by forty-two authorities in the field of malaria research and control. Contributors were selected by a joint committee from representatives of the Association for the Advancement of Science, the American Society of Parasitologists, the American Society of Tropical Medicine, and the National Malaria Committee. The contents are organized into eight sections with a very comprehensive bibliography.

The introductory section provides a brief history of malaria and there follow sections on: "parasitology," discussing the taxonomy and morphology of the principal American strains of *Plasmodium;* "anopheline vectors," including discussion of the morphology, distribution, bionomics, and ecology of *Anopheles* species of North America; "the epidemiology of malaria" as related to variations in prevalence, the influence of topography and related factors; "symptomatology," in which there is considerable detail regarding the clinical characteristics of infections and the influence of variables such as sporozoite dosage and race; "pathology and immunity," where considerable discussion is found relative to the cellular basis as opposed to the humoral nature of immunity in the disease; "treatment," which presents the broad characteristics of chemotherapy and devotes considerable attention to experimental methods for the study of chemotherapy; and the final section which deals with control and potential eradication of the disease. Here there is presented in some detail the relative values of various methods used in control, including drainage, filling, larvicidal measures, and naturalistic control.

The question of housing with special reference to mosquito-proofing is discussed in one chapter while the management of water with particular reference to impounded water is covered by another.

Throughout the entire text of the volume, very considerable attention is devoted to the need for research. Despite the great amount of work done in recent years on this disease, there are yet many gaps in our knowledge; and, as the editor remarks, there are here indicated "many unexplored fields such as the production of culture media in which to grow and study the parasites, the development of vaccines and the synthesis of prophylactic drugs." As a whole, the symposium appears to accomplish the very necessary purposes of drawing together in brief compass the existing knowledge concerning malaria and its distribution in this region of the world and of pointing out fields in which knowledge must be extended by research before there is much opportunity for improvement in either the effectiveness or the economy of control. It is an eminently practical treatment of a very important disease and is recommended as a reference text for everyone who has either a direct or collateral interest in malaria. It should also be of particular value to public health administrators and to teachers of preventive medicine.

Taking the volume as a whole, the

editor does not overstate the case when he writes that the book represents "a systematic, comprehensive, authoritative and thoroughly documented discussion of the problems of human malaria in North America and the Caribbean region." E. L. BISHOP

Nursing in Prevention and Control of Tuberculosis — *By H. W. Hetherington, M.D., and Fannie Eshleman, R.N. Philadelphia: Putnams,* 1941. 216 pp. Price, $3.00.

From one of the outstanding centers of the United States for the study, treatment, and prevention of tuberculosis comes this textbook for nurses. The authors have recognized the need for all nurses to have a comprehensive knowledge of the diagnostic and therapeutic procedures involved in the prevention and control of tuberculosis. They have made many explanations regarding the disease and its diagnosis and treatment which heretofore have been only vaguely understood by the average nurse.

The authors are well prepared to write such a text and they have done an admirable piece of work. Both Dr. Hetherington and Miss Eshleman have had many years' experience in tuberculosis work. The book contains factual material, representing the best thinking of the nation's leaders in the tuberculosis field. Controversial issues are treated objectively and with an open-mindedness that will appeal to the reader. The book will prove of interest to the student nurse as well as to the sanatorium and the public health nurse. For classroom purposes, or for the individual interested in further study of this subject, the many references will provide a good source of material.

The text describes in detail the technics to be observed in the nursing care of the tuberculous and the nature of the nurse's service in the sanatorium, dispensary, or in the public health field where she is rendering a family health service. The text contains numerous illustrations, including types of records, as well as description of the equipment and set-up necessary in many nursing procedures. These will be of considerable value to the nurses rendering services to the tuberculous, but who have had little or no special training in this field. HELEN LE LACHEUR

Mobile Homes — A Study of Trailer Life—*By Donald Olen Cowgill. Washington: American Council on Public Affairs,* 1941. 127 pp. Price, $2.00.

To one whose contact with trailers has been mainly through complaints of neighbors of a trailer parked for several days next door, this book is an eye opener. Instead of dealing largely with a group of transients who are living under makeshift conditions with poor sanitary facilities and conditions, an entirely new picture of trailerites as a group is presented.

The author who has traveled in his own trailer over a period of two years has summarized data collected from 131 trailer families. He recognizes the impossibility of getting a complete and accurate picture of the trailer population, but he has secured a representative sample of trailerites that one would meet in traveling about the country. This little book is packed full of tables which are discussed. Interest is added to the story by the inclusion of quotations from fellow trailerites on various questions under discussion in the report and by many personal observations. The author concludes that the majority of trailerites are stable and responsible individuals. The average income per family of this sample was $254.49. Sixty-five per cent had completed a high school education and 21 per cent had finished college.

Practically all trailer dwellers are married and a very large proportion of

non-vacationist trailerites are retired couples and salesmen. Occupations that require frequent movement from place to place provide another large proportion of this group. There was an almost complete absence of unskilled laborers.

The reviewer feels after reading this report that a community with a sufficient number of trailer lots in well designed and constructed trailer camps would either find its problem solved, as the author seems to feel, or would have its trailer problem redefined in terms of two types of trailerites, those who are represented by the sample reported on and those who would not patronize well operated trailer camps.

This book should be read by all municipal administrators who are concerned with the control of trailers and trailer camps. ALFRED H. FLETCHER

Principles of Microbiology — *By Francis E. Colien and Ethel J. Odegard. St. Louis: Mosby,* 1941. 444 pp. Price, $3.00.

This textbook is primarily intended for student nurses in the basic course of three years and for graduate nurses who are preparing for specialized positions. The authors state their intention " to present the subject so as to emphasize its application to the nursing sciences and disease prevention."

The authors have included material usually covered in general bacteriology as well as material on pathogenic protozoa and filterable viruses. In general the factual information regarding organisms is satisfactory, but the discussion of applied bacteriology in hospitals and public health laboratories is not. By attempting to give too much detail regarding laboratory work which cannot be covered properly in this type of text, the authors have given a good deal of erroneous information. The authors are apparently not well informed on present-day preventive medicine and its application to public health. In the chapter on tuberculosis, the method given of interpreting Mantoux tests is not the one recognized as standard by the National Tuberculosis Association, and statistics given are 20 to 30 years behind the times. For example, " It is generally concluded that over 90 per cent of the people living in the cities of civilized countries have been infected with some form of tuberculosis before they reach adult life."

Discussion of the examination of food handlers gives the reader much misinformation. The authors state that the examination of milk handlers every six months should include throat and nose cultures for the detection of diphtheria carriers and tests for streptococci and venereal infection and assure that " physical examinations of this nature will aid greatly in the prevention of milk-borne infections." The statement is also made that " Persons in the communicable stages of syphilis should be prohibited from preparing or serving food to be consumed by others."

Again, the chapter on " Microbiology in relation to water " is very badly done. One might best dismiss the public health phase of the book by stating that most of the material given in the applied field of preventive medicine and public health is so incorrect and far behind the times that the book should not be recommended as a reference book for public health nurses. LUCY HEATHMAN

Social Case Records from Psychiatric Clinics — *By Charlotte Towle, Chicago: University of Chicago Press,* 1941. 455 pp. Price, $3.00.

The author, who is Associate Professor of Psychiatric Social Work at the University of Chicago, states that this collection of case records was prepared primarily for use in her own classes. It will be interesting, however, to practising social workers and to others who have a knowledge of social case work as well as to teachers and students.

When used in the classroom the cases will be elaborated by interpretation of the meaning of the material presented and discussion of the methods of treatment. The individual reader will find the cases stimulating to his own diagnostic thinking. Because the book presents source material rather than the theory of psychiatric case work, Miss Towle's introduction is an unusually important and valuable section. Here she gives briefly, but with a clarity familiar to those who have been in her classes, her general philosophy and the principles of diagnostic thinking and treatment which are evidenced in the case material.

There are twelve case records given in narrative form and in considerable detail. The cases come from three different clinics and provide interesting variations in problems and methods. The recording is well done and strikes a satisfactory balance between lengthy but often unimportantly detailed reporting and the case summaries which are so condensed the reader finds difficulty in understanding the direction of treatment. Each case is followed by discussion notes designed to stimulate questions rather than to provide answers. A bibliography is also attached to each record and this with an excellent index should prove particularly helpful to the reader who is trying to enlarge his own understanding and perfect his methods of case work practice.

THEODATE H. SOULE

Lange's Handbook of Chemistry —*By N. A. Lange (4th ed.). Sandusky, Ohio: Handbook Publishers,* 1941. 874 pp. Price, $6.00.

This 4th edition, of which 271 pages are devoted to mathematical tables and formulas, is 8″ x 5″ in size and admirably bound for all purposes. An index, essential to a book of this type, is replete with references to the subject matter. New tables and extensions of old ones have increased this edition in length by 85 pages. Eleven new tables are included and 15 have been increased in value by extensions or rewriting.

ARTHUR P. MILLER

Germs and the Man — *By Justina Hill. New York: Putnam's,* 1940. 461 pp. Price, $3.75.

A unique feature of this latest attempt to popularize bacteriology is the inclusion of an extensive discussion of "the man"—131 pages devoted exclusively to a pathology and body defenses against infection. The bacterial enemy and the artificial aids to fighting him are discussed in another 257 pages.

It is a lively discussion, but much more so in some sections than others. The teacher of bacteriology, faced with a lecture room filled with sleepy students, may find it difficult to refrain from referring to "the 33 types of pneumococci which share a common protein antigen but differ in their frostings" or remembering the analysis of remaining "apart like grapes in fruit jelly" when he first tells his class of what solid media meant to bacteriology, or defining "anatoxin" as "toxin with its teeth pulled." But many, perhaps, will grow weary as they read on under the continuous bombardment of fancy phrases, such as "in that Ultima Thule of complete immunization," "that hotbed of elegant curiosity, the Royal Society," "a botanist in this fold would be as out of place as a redwood in a miniature garden," "a bell jar, a nuisance in the laboratory if not in the neo-Victorian drawingroom."

Nevertheless, the story moves on. The history of laboratory and clinical achievements, chapters in modern epidemiology, or stories of famous personalities are woven into its fabric. Sometimes a subject is well reviewed as, for example, the history of disinfection (pp. 304–319); usually, however, small incidents are brought into

the picture in an informal and entertaining manner and do not detract from the essential story of the man's fight against infection down to 1940.

Included is much detail of recent advances in chemotherapy, even to the use of sulfanilylguanadine. One is, therefore, surprised that in so modern a book the significance of finding the virus of poliomyelitis in sewage, or the bactericidal properties of penicillen has been overlooked. Nevertheless, the popularizer of public health and bacteriology will probably keep a copy close at hand.

LEONA BAUMGARTNER

Effective Living—*By C. E. Turner, Dr.P.H., and Elizabeth McHose. St. Louis: Mosby,* 1941. 432 pp. Price, $1.90.

For a long time we have needed a combined textbook and teacher's guide in health instruction at the secondary school level. The authors of this book have fulfilled such a need. The book is written in a simple style well adapted to high school students; methods of presentation are interesting; units of work are broad enough to suggest desired elaboration and the frequent illustrations (164) help to hold the reader's attention. The material has been tested in actual classroom situations and has been organized according to the reaction of students. Factual material is sound and "up to date."

This hygiene text is divided into three sections (instead of the conventional two sections, one on personal and one on community health). The second section touches on some of the health problems within the family group. These include such subjects as relationships of children and parents, children and their friends, problems of courtship and mating, maternal and infant health, and health problems of later years. The mental hygiene content in this section is prominent.

The third section, "Effective Living in the Community," is especially appropriate. The senior author has crystallized his broad experience in public health teaching into a concise and simple presentation.

At the conclusion of each unit there is a "self checking" list for student self evaluation. There are also lists of problems and activities supplementing the text, and lists of references. Following the last unit there are listed the various sources of reference material. A plan is described whereby health material can be coördinated incidentally in the teaching of other high school subjects. Technical terms appear somewhat too frequently in the text, but these are defined in a glossary.

CHARLES E. SHEPARD

Laboratory Guide in Elementary Bacteriology—*By M. S. Marshall. Philadelphia: Blakiston,* 1941. 244 pp. Price, $1.75.

This book is made up in an attractive and practical form, bound in imitation limp leather with a blank sheet opposite each exercise for class notes. The outline of the exercises is designed to catch the student's interest. Great emphasis is placed on the necessity of analyzing and understanding each experiment. A list of questions covering laboratory exercises, outside reading and lectures is given at the end of each section and should prove helpful and stimulating. The exercises are divided into six sections as follows: Introductory Technique, Morphology, Physiology, Applied Bacteriology, Serology, and Infection. These sections are followed by an appendix giving the apparatus, cultures, and other equipment needed to present the course.

The experiments as a whole are thoughtfully worked out and the sections are well organized. The experiments on the physiology of bacteria are especially good. The exercises under applied bacteriology are valuable as a

teaching tool, showing distribution of bacteria in milk, water, soil, etc., but in a general and elementary course the student scarcely has sufficient background to undertake really standard technics, nor are the exercises extensive enough to give him a sound idea of standard methods of milk and water analysis. The brief exercises in serology probably serve a purpose in helping the elementary student to grasp the idea of antigen-antibody reactions. They might be expanded profitably. The exercises on infection are well designed, but here again the reviewer feels they might be expanded to include more groups of bacteria. There is a studious avoidance of the use of pathogens which leads to some limitation in the type of exercise possible. There is little apparent effort made to give the student an idea of the classification and identification of bacteria.

As a whole the book is excellent and the exercises, if carefully done and supplemented by adequate didactic work, would serve admirably to give the student a good basis on which to build his knowledge of bacteriology.

CORA M. DOWNS

BOOKS RECEIVED

ADMINISTRATIVE MEDICINE — A LOOSELEAF PUBLICATION. Edited by Haven Emerson. New York: Nelson, 1941. 839 pp. Price, $7.50.

AN X-RAY ATLAS OF SILICOSIS. By Arthur J. Amor. Baltimore: Williams & Wilkins, 1941. 206 pp. Price, $8.00.

RHEUMATIC FEVER IN NEW HAVEN. Edited by John R. Paul. New York: Milbank Memorial Fund. 1941. 176 pp. Price, $1.00.

WE NEED VITAMINS. By Walter H. Eddy and G. G. Hawley. New York: Reinhold, 1941. 102 pp. Price, $1.50.

PROFESSIONAL DENTISTRY IN AMERICAN SOCIETY. By Alfred J. Asgis. New York: Clinical Press, 1941. 248 pp. Price, $4.50.

PREECLAMPTIC AND ECLAMPTIC TOXEMIA IN PREGNANCY. By Lewis Dexter and Soma Weiss. Boston: Little Brown, 1941. 414 pp. Price, $5.00.

IMMUNIZATION TO TYPHOID FEVER. From Research Laboratories of the Army Medical School, Washington, D. C. Baltimore: Johns Hopkins, 1941. 276 pp. Price, $2.50.

REFERENCE HANDBOOK FOR NURSES. By Amanda K. Beck and Lyla M. Olson. 9th ed. Philadelphia: Saunders, 1941. 347 pp. Price, $1.60.

MEDICAL CARE IN NEW YORK STATE 1939. State Health Commission Report. Leg. Doc. (1940).

TEACHING PREVENTIVE MEDICINE TO MEDICAL STUDENTS. By Hugh R. Leavell. New York: Commonwealth Fund, 1941. 77 pp. Price, $.25.

THE BAKER MEMORIAL 1930–1939. By Haven Emerson. New York: Commonwealth Fund, 1941. 75 pp.

HEALTH-SAFETY-GROWTH SERIES. GROWING UP (Grade 3), KEEPING SAFE AND WELL (Grade 4). By C. E. Turner, et al. Boston: Heath, 1941. Each, $.72.

HANDBOOK FOR CIVILIAN DEFENSE. By Mayer-Daxlanden. New York: Civilian Advisory Service, 1941. 88 pp. Price, $1.00.

THE MODERN TREATMENT OF SYPHILIS. By Joseph Earle Moore. 2d ed. Springfield: Thomas, 1941. 674 pp. Price, $7.00.

WILLIAM HENRY WELCH AND THE HEROIC AGE OF AMERICAN MEDICINE. By Simon Flexner and James Thomas Flexner. New York: Viking Press, 1941. 539 pp. Price, $3.75.

NUTRITIONAL DEFICIENCIES. By Joseph B. Youmans. Philadelphia: Lippincott, 1941. 385 pp. Price, $5.00.

THE MICROBE'S CHALLENGE. By Frederick Eberson. Lancaster: Jacques Cattell Press, 1941. 354 pp. Price, $3.50.

ABOUT OURSELVES. By James G. Needham. Lancaster: Jacques Cattell Press, 1941. 276 pp. Price, $3.00.

BEHIND THE MASK OF MEDICINE. By Miles Atkinson. New York: Scribner, 1941. 348 pp. Price, $3.00.

UNDERSTANDING YOURSELF. By Ernest R. Groves. Rev. ed. New York: Emerson, 1941. 279 pp. Price, $2.50.

L. BAXTER MEDICUS. By Knud Stouman. New York: Greystone Press, 1941. 406 pp. Price, $2.75.

HOUSING FOR HEALTH. By the Committee on the Hygiene of Housing of the American Public Health Association. New Haven: The Committee, 1941. 221 pp. Price, $1.00.

TWELVE MONTHS OF HEALTH DEFENSE (1940 Annual Report). Edited by Savel Zimand. New York: Department of Health, 1941. 283 pp. Price, $1.00.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

For Expectant Authors — If you hope some day to see a eulogistic note here about one of your scientific brain children, then read, ponder, and digest this excellent, but too brief, treatise on how to write it. Even if such a note about your contribution has already appeared here, this paper is still worth your while.

BAKELESS, J. The Technic of Technical Writing. Am. J. Nurs. 41, 10:1141 (Oct.), 1941.

Are Children Less Healthy Now-a-days?—School children in Hagerstown, Md., were absent from school more often during 1939–1940 than during the time of similar surveys made 5 and 20 years earlier. Girls were absent more often than boys and the increased absenteeism was allegedly due chiefly to colds and digestive disorders. Whether this was due to a greater incidence of these conditions or to our advice to mothers to take better care of the youngsters with minor illnesses is discussed. Perhaps you had better read the whole article to form your own conclusion.

CIOCCO, C., *et al.* A Comparison of the Morbidity of Hagerstown, Maryland, School Children in 1921–1925, 1935–1936, and 1939–1940. Milbank Quart. 19, 4:375 (Oct.), 1941.

How to Say It—Brief but pointed is this list of some commonly mispronounced medical and scientific terms—words like syndrome, angina, nomenclature, and apparatus — words that you'll hear manhandled on any annual meeting program. Some Samaritan should extend this list to include the terrors in our public health vocabulary.

CLAGETT, A. H., JR. Pronunciation of Medical Terms. J. A. M. A. 117, 16:1377 (Oct. 18), 1941.

Why and How Often the Doctor Calls—From questions asked of a great many families it was found that the doctor made 4.2 calls per illness. How many visits were made for the various kinds of illnesses, how often a specialist was called for consultation, how many clinic visits, how many non-medical practitioners were summoned, and a lot of other useful information will be found here.

COLLINS, S. D. Doctor's Calls in Connection With Illness from Specific Diseases Among 9,000 Families, Based on Nation-wide Periodic Canvasses 1928–31. Pub. Health Rep. 56, 41:1941 (Oct. 10), 1941.

Mapharsen K O's Syphilis—Any method that will eliminate syphilis in at least 85 per cent of the early cases with 5 days of treatment is important to public health and warrants continued study in well organized centers. To this measured conclusion few will refuse to say Amen.

ELLIOTT, D. C., *et al.* An Evaluation of the Massive Dose Therapy of Early Syphilis. J. A. M. A. 117, 14:1160 (Oct. 4), 1941.

About Our Dietary Sins—Reviewing the whole subject of nutrition as it relates to national welfare, now and hereafter, this excellent summary is a highly useful work sheet from which the interested health worker may extend his reading to some of the 92 recent papers listed in the bibliography.

JEGHERS, H. Nutrition. New Eng. J. Med. 225, 18:687 (Oct. 30), 1941.

Epidemiologists Put Two and Two Together—The largest recorded epidemic of encelphalitis has ended. Mosquitoes can transmit the disease, and mosquito infestation was heavy in the affected region. The disease was predominantly rural, and among the "field-hand" age groups. If mosquitoes are the vector there may be some reservoir other than man or horse. The prairie chicken is implicated.

LEAKE, J. P. Epidemic of Infectious Encephalitis (also)

COX, H. R., *et al.* Isolation of Western Equine Encephalomyelitis Virus From a Naturally Infected Prairie Chicken. Pub. Health Rep. 56, 39:1902 (Sept. 26), 1941.

A Word to the Constipated — It seems that mineral oil is not the harmless, mild laxative we have assumed it to be. Health educators will do well to ponder upon this paper and the reported panel discussion that follows it. There the author admits he knows of no good laxative as he continues to express his opinion of mineral oil.

MORGAN, J. W. The Harmful Effects of Mineral Oil (Liquid Petrolatum) Purgatives. J. A. M. A. 117, 16:1335 (Oct. 18), 1941.

Wassermann Test Really Works — *News Item* — Reassuring indeed is this report upon the check-up of state laboratories performing the several standard diagnostic tests for syphilis. When the supervisory checks are extended to local laboratories, as they are in many states, then Doubting Thomases may well settle their gloomy forebodings about the Wassermann.

PARRAN, T., *et al.* Serodiagnostic Tests for Syphilis in State Laboratories. J. A. M. A. 117, 14:1167 (Oct. 4), 1941.

Those Much-Discussed Rejectees —Though rejections were higher in 1941 than in 1918 this does not mean that the physical status of young men has deteriorated, but the current crop of impairments that might have been prevented by adequate public health programs does make it painfully evident that we should be doing more prophylactic work than we are.

PERROTT, G. ST. J. Physical Status of Young Men, 1918 and 1941. Milbank Quart. 19, 4:337 (Oct.), 1941.

To Clarify Our Knowledge of Tuberculosis—Thirty-odd papers upon almost every conceivable aspect of industrial tuberculosis (and non-industrial, for that matter) are abstracted in this report of a symposium covering a full 5½ days of searching discussion by some recognized leaders in the field.

SAPPINGTON, C. O. Tuberculosis in Industry. Ind. Med. 10, 10:433 (Oct.), 1941.

No More You-Know-What by 1960?—One to four per cent of discharged tuberculous patients receive vocational rehabilitation. Half the discharged patients need it. Here lies the most neglected of the essentials to tuberculosis prevention.

SILTZBACH, L. E. Rehabilitation of the Tuberculous. Am. Rev. Tuberc. 44, 3:357 (Sept.), 1941.

For Tobacco Road — Better prenatal care in those parts of the South where birth rates are high, but income levels low, would tend to lower fertility rates, for the better the care that is devoted to each child, under the influence of rising standards, the fewer (and better) children the family is likely to have. The inference to this conclusion is so obvious it yells to high Heaven.

VANCE, R. B. The Regional Approach to the Study of High Fertility. Milbank Quart. 19, 4:356 (Oct.), 1941.

Our Neglected Mentally Ill—Any mother would take her problem child with less prejudice and hesitation to the health center where she had gone for immunizations and the like than to the outpatient department of an "insane

asylum." This is the nub of a telling plea for the inclusion of mental health in local health administrative programs.

VOGEL, V. H. Our Inadequate Treatment of the Mentally Ill as Compared with Treatment of Other Sick People. Pub. Health Rep. 56, 40:1941 (Oct. 3), 1941.

When Workers Wilt—Some of the signs of fatigue among Canadian industrial workers are briefly discussed. During the augmented war effort more and more people are attempting more than their capacity to perform will permit. Home guard duties and training are an important factor.

WARD, R. V. Chronic Fatigue Symptoms among Industrial Workers. Canadian Pub. Health J. 32, 9:464 (Sept.), 1941.

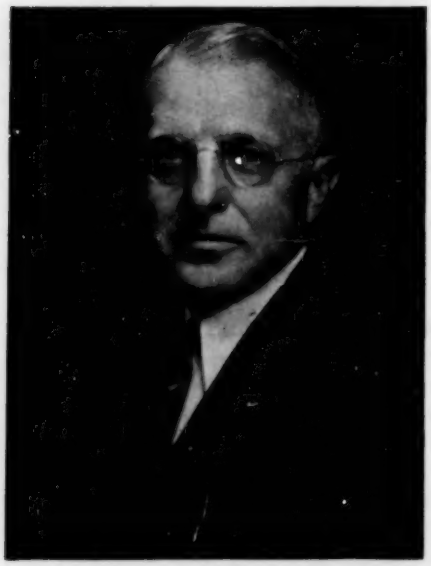
Games vs. Physical Training—England, experiencing a grim test of physical fitness, is paying the penalty of long neglect of communal sports centers directed by men with a genius for making people want to play. Setting-up exercises, no matter how rigorously drilled, will never be a substitute, thinks this British military man.

WEBSTER, F. A. M. Athletics in Relation to National Fitness. J. Roy. Inst. Pub. Health & Hyg. 4, 10:241 (Oct.), 1941.

ASSOCIATION NEWS

Allen W. Freeman, M.D.
President-Elect

DR. ALLEN WEIR FREEMAN, of Baltimore, Md., was chosen President-Elect at the 70th Annual Meeting of the Association in Atlantic City, N. J., in October. Dr. John L. Rice, of New York City, was inducted into office as President, and Dr. W. S. Leathers, of Nashville, Tenn., retired as President.



ALLEN W. FREEMAN, M.D.

Dr. Freeman was born in Lynchburg, Va. on January 7, 1881. He took his baccalaureate degree at Richmond College, and his M.D. degree at the Johns Hopkins University in 1905. After completing his interneship at Newark (N. J.) City Hospital, he became a demonstrator in physiology at the Medical College of Virginia, and a year later joined the staff of the Richmond Health Department as Medical Inspector. He became Assistant Commissioner of Health in Virginia in 1908, which position he occupied until 1915. He was State Director of the Rockefeller Hookworm Commission for Virginia from 1910 to 1914 From 1915 to 1917 he served the United States Public Health Service as epidemiologist and was appointed Commissioner of Health for the State of Ohio in 1917, serving in this post until 1921. His career at Johns Hopkins University began in the same year with a resident lectureship in public health administration. In 1923 he became Professor of Public Health Administration, which position he still occupies. Dr. Freeman served as Dean of the School of Hygiene and Public Health from 1934 to 1937. As a Major in the Medical Corps of the United States Army in 1918 he investigated pneumonia in Army camps among other epidemiological studies. In 1926 he was made a special member of the Rockefeller Foundation Staff and lectured at the University of Rio de Janeiro. Dr. Freeman is a Fellow of the American Public Health Association, and of the American Academy of Public Health, and a member of the American Medical Association and of the Medical Society of Virginia.

So ends the historical story. Dr. Freeman in all of his activities, however, has been a teacher, and his influence on the rising generation of public health administrators is outstanding, as all the world knows.

Sedgwick Memorial Medal for 1941 Awarded to Dr. Charles Armstrong

DR. ARMSTRONG, twelfth recipient of the Sedgwick Memorial Medal, was born in Alliance, Ohio, on September 25, 1886. He was graduated from Mt. Union College in 1910, and took his M.D. degree at Johns Hopkins in 1915. The degree of Doctor of Science was conferred upon him by Mt. Union College in 1933. He has been an officer of the United States Public Health Service since the completion of his interneship in 1916—assistant surgeon, passed assistant surgeon, surgeon, and senior surgeon. He is now an investigator for the National Institute of Health. His researches have been many and notable, including research in botulism, influenza, syphilis, tetanus following vaccination, milk-borne epidemics, dengue, encephalitis, psittacosis, poliomyelitis, and choriomeningitis.

The award was made on October 14, 1941, during the 70th Annual Meeting at Atlantic City, by Thomas Parran, M.D., Chairman of the Sedgwick Memorial Medal Committee. Dr. Parran in presenting the medal said:

"The Committee on the Award of the Sedgwick Memorial Medal, composed of the last five living recipients of this award, has the very great privilege of presenting the Sedgwick Memorial Medal for 1941 to Dr. Charles Armstrong of the National Institute of Health, Washington, D. C.

"At the old Hygienic Laboratory in Washington, more than a decade ago, a group of scientists was engaged in conversation of a somewhat desultory nature; the discussion drifted to the aims, ambitions, and lodestars of men and of scientists in particular. The oldest member of the group, shortly afterward claimed by death, was Joseph Goldberger. He was asked what he himself would value above all else as a reward for his achievements; his reply was 'the esteem and good wishes of my colleagues.'

CHARLES ARMSTRONG, M.D.

"To a greater or less degree we are familiar with research work in the field of human diseases but comparatively few of the workers in this field are personally known to any one of us. It has been my good fortune to know a few of these men well, and one in particular I have known for almost a quarter of a century. I have followed his outstanding work on botulism, tetanus, dengue, influenza, psittacosis, encephalitis, choriomeningitis, and poliomyelitis. He is unique in that he has made a distinct contribution to our knowledge of every disease with which he has worked. I know his adequate preparation, his careful procedure, and

his rigid criticism of his own work; I know him also as an essentially human person, very modest, thoroughly kind, completely unselfish, and of unfailing equanimity.

"Your scientific achievements, Dr. Armstrong, have won for you a place in the front rank of investigators and your personal qualities endear you to scientist and layman alike—to all who seek after truth.

"The members of the Association take a great deal of pleasure in awarding to you—for distinguished service in public health — the Sedgwick Memorial Medal for 1941 as a physical token of 'the esteem and good wishes of your colleagues.'"

GRANTING OF HONORARY MEMBERSHIPS TO VISITORS FROM LATIN AMERICAN COUNTRIES

AT THE Atlantic City Annual Meeting the A.P.H.A. bestowed honorary membership for one year on each of the following distinguished visitors from Latin America:

Argentina—Dr. Hugo D'Amato, Secretary of the National Department of Health

Bolivia—Dr. Abelardo Ibáñez Benavente, Minister of Public Health; Dr. F. Torres-Bracamonte, Member of the Ministry of Public Health

Brazil—Dr. Teófilo Almeida, Director, Federal Hospital Division, National Department of Health

Chile—Dr. Salvador Allende, Minister of Health and Social Welfare; Dr. José Vizcarra, Manager, Valparaiso Branch, Social Security Service

Colombia—Dr. Roberto Franco, Counselor of Colombian Embassy; Dr. J. Aristizábal, Professor of Medicine, Medellin University

Cuba—Dr. Félix Hurtado, Undersecretary of Health; Dr. E. Saladrigas, Director, Finlay Institute; Dr. Mario LeRoy, Secretary, Finlay Institute.

Dominican Republic—Dr. Wenceslao Medrano, Minister of Health and Social Welfare; Dr. L. F. Thomen, Member of the Ministry of Health and Social Welfare

Ecuador—Dr. J. A. Montalván, Assistant Director of Health

El Salvador—Dr. Victor Sutter, National Director of Health

Guatemala—Dr. C. Estévez, Director General of Public Health

Haiti—Dr. Rulx Léon, Former Undersecretary of Public Health

Honduras—Dr. Pedro H. Ordóñez Díaz, National Director of Public Health

Mexico—Dr. Joaquín Astorga, Chief of the Rural Hygiene Office

Nicaragua—Dr. Louis M. Debayle, National Director of Public Health

Paraguay—Dr. Raúl Peña, Director of Public Health

Peru—Dr. J. A. Estrella Ruiz, Director of Public Health

Uruguay—Dr. J. C. Mussio Fournier, Minister of Public Health

Venezuela—Dr. A. Castillo Plaza, Director of Public Health

Other official delegates from Latin American countries who attended the meeting and who are already affiliated with the Association are as follows:

Chile—Dr. Rigoberto Ríos Castro, Chief of Health Education

Colombia—Dr. J. A. Montoya, Member, National Institute of Health

Cuba—Dr. Domingo F. Ramos, Minister of National Defense; Dr. Carlos E. Finlay, Director of Public Health

Mexico—Dr. Mario Quiñones, Secretary of the Department of Health; Dr. Angel de la Garza Brito, Director of the School of Public Health; Dr. Gustavo A. Uruchurtu, Chief of the Office of Health Education

Puerto Rico—Dr. Eduardo Garrido-Morales, Commissioner of Public Health, and Vice-President, American Public Health Association

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

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Joseph Duplessis, M.D., 2107 Chelsea Terrace, Baltimore, Md., Epidemiologist, City Health Dept., Montreal, Que., Canada

Grant O. Favorite, M.D., 1313 Andover Rd., Overbrook, Philadelphia, Pa., Dept. of Preventive Medicine & Public Health, Hahnemann Medical College

Julia MacPhillips, 314 State St., Albany, N. Y., Consultant Public Health Nurse, State Dept. of Health

Gilbert F. Otto, Sc.D., 615 N. Wolfe St., Baltimore, Md., Assistant Dean, School of Hygiene and Public Health, Johns Hopkins Univ.

Unaffiliated

Charles P. I. Bergtholdt, M.S.P.H., 305 City Hall, Omaha, Nebr., Sanitarian, Omaha-Douglas County Health Unit

Iva W. Holmes, County Bldg., Johnstown, N. Y., Executive Secretary, Fulton County Tuberculosis and Public Health Assn.

William F. Hunting, M.D., Box 61A, R. R. 6 Amberley, Lockland Station, Cincinnati, Ohio, Director of School Hygiene and Health, Board of Education

Martin M. Kaplan, V.M.D., 5919 York Rd., Philadelphia, Pa., Student, Univ. of Pa.

John A. Louis, M.A., 1575 Neil Ave., Columbus, Ohio, Assistant Secretary, Ohio Public Health Assn.

Edwin E. McNiel, M.D., The Queen's Hospital, Honolulu, Hawaii, Director, Bureau of Mental Hygiene and the Mental Hygiene Clinic

Manuel Perez-Torres, B.S., 30 Tapia, Stop 44, Santurce, Puerto Rico, Entomologist, Dept. of Health

Dr. Pie Rechani-Rodrigo, Unidad Salud Publica, Caguas, Puerto Rico, Food and Drug Inspector, Div. of Pharmacy

Wilson T. Sowder, M.D., M.P.H., City Health Dept., Tampa, Fla., P. A. Surgeon, U. S. Public Health Service

Nancy Mae Warren, M.A., 620 South Third, Louisville, Ky., Record Technician, State Dept. of Health

DECEASED MEMBERS

Joseph E. Pollard, M.D., Newark, N. J., Elected Member 1924

Charles J. Whalen, M.D., Chicago, Ill., Elected Member 1910

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearing house on employment. This is a service of the Association conducted without expense to the employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

Unassembled Examinations in West Virginia

The Merit System Council of West Virginia, Box 873, Morgantown, has announced that it is expected that unassembled examinations will shortly be given for the following positions in the West Virginia State Health Department.

Position	*Salary per month*
Chief of Medical Services	$325–$400
Ophthalmologist	275– 350
Director of County Health Work	350– 400
Director, Maternal & Child Hygiene	350– 400
Director, Communicable Diseases	350– 400
Director, Vital Statistics	350– 400
Director, Industrial Hygiene	350– 400
Assistant Director, Maternal & Child Hygiene	320– 375
Assistant Director, Communicable Diseases (Venereal)	320– 375
Assistant Director, Tuberculosis	320– 375
Venereal Disease Consultant	320– 375
Senior Health Officer	320– 375
Junior Health Officer	280– 320
Health Officer Trainee	$200

Residence in West Virginia has been waived in consideration of the applications for these positions. However, residents of the state may be given preference in making appointments. Complete information may be obtained by writing to the Merit System Council.

Vacancy in Los Angeles City Health Officer Position

The City of Los Angeles is seeking qualified applicants for the position of City Health Officer paying a salary of $7,200 per annum. While the city charter requires that candidates for this position be residents of the City of Los Angeles if possible, if insufficient competition for this examination is obtained, candidates who do not reside in the city may become eligible if they are otherwise qualified. From the experience of other agencies in this area it is probable that insufficient competition will be obtained and that it will be necessary to waive the residence requirements.

The City Health Officer is the Chief Administrative Officer of the City Health Department and plans and administers a broad public health program, including medical and inspectional services. He is responsible for the proper enforcement of health laws and ordinances and the prevention and control of communicable disease in the city.

Public health physicians who are interested in this position should communicate with the Los Angeles City Civil Service Commission, Room 11, City Hall, Los Angeles, California, for further information.

U. S. Civil Service Commission

The Commission has announced that applications will be received for positions as Senior Medical Officer ($4,600), Medical Officer ($3,800), and Associate Medical Officer ($3,200) for appointments in the Public Health Service, with the Food and Drug Administration, Veterans' Administration, and the Indian Service. Forms for application may be obtained from the U. S. Civil Service Commission, Washington.

Junior Public Health Nurse. A civil service examination for Public Health Nurse ($2,000) has been open for some time. Nurses who have been unable to qualify for

this examination because of the experience requirement now have an opportunity to qualify through a new Junior Public Health Nurse examination ($1,800) which requires no experience. Applications are also being received for examinations now open for Junior Graduate Nurse ($1,620) and Graduate Nurse for general staff duty ($1,800). Further information and application forms may be obtained at any first or second class post office or from the Civil Service Commission, Washington.

POSITIONS AVAILABLE

Young woman, trained in Home Economics, for group contact work in behalf of an important commercial organization whose products are useful in the protection of public health and the National Nutrition Program. Experience in the public health field or related fields is essential. Office in New York, some travel involved. Write **Box H**, Employment Service, A.P.H.A.

Southern State Department of Health seeks physicians qualified by training and experience as County Health Officers or as Pediatricians. Write **Box B**, Employment Service, A.P.H.A.

Western State Department of Health will consider applications from physicians with experience and a degree in public health. Write **Box S**, Employment Service, A.P.H.A.

Physician with public health training to serve as full-time County Health Officer in rural South Atlantic area. Salary $3,600 to $4,000. Write **Box C**, Employment Service, A.P.H.A.

County Public Health Nurses for New Mexico. Must have four months' postgraduate instruction under one of the recognized public health nursing courses and one year's experience. Must drive and have a car. Address inquiry to State Health Department, Santa Fe, N. M.

Physician with either public health training or experience in local health department administration to serve as health director in a county health department in mid-western state. Salary $4,000 and $500 travel (flat rate). Well established department with offices in attractive little city of 10,000. Write **Box T**, Employment Service, A.P.H.A.

Wanted: Trained Public Health Nurse, starting salary $1,500 per year and traveling expense, increase to $1,700 within 6 months. Saginaw County Health Department, Saginaw, Mich.

The State Department of Social Security and Welfare, Crippled Children's Division, of Phoenix, Ariz., has three vacancies to be filled. Examinations will soon be held for orthopedic nursing consultant, nurse-physical therapist, and medical social worker.

Further information may be obtained by writing to the Merit System Supervisor, Room 208, 128 North First Avenue, Phoenix, Arizona.

PHYSICIANS WANTED IN CINCINNATI

Carl A. Wilzbach, M.D., Commissioner of Health of Cincinnati, has announced that there are vacancies for white male physicians, aged 23 to 50, graduates of recognized colleges of medicine, licensed to practise in Ohio, for appointment to the Cincinnati Health Department. Duties include surveillance over communicable disease, infant and child welfare work, medical service for sick poor, epidemiological surveys of communicable disease, examinations for work certificates, school teachers, etc., vaccination, medical school inspection. Salary $2,640 to $3,360 plus transportation allowance of $240 per annum. Eligible for a retirement system. Persons interested should communicate with Dr. Wilzbach, Commissioner of Health, City Hall, Cincinnati, Ohio.

POSITIONS WANTED

ADMINISTRATIVE

Physician, M.D. Tulane, M.P.H. Johns Hopkins, age 31, experienced as health unit director, prefers administrative position in the South. **A–488**

Physician with M.P.H. from Johns Hopkins 1924, experienced as state director for communicable diseases, as county health officer and as director of field training center, will consider responsible position with good income. **A–483**

Physician, age 35, with Dr.P.H. from Harvard and experienced in administrative tuberculosis control will consider a good administration position. **A-476**

HEALTH EDUCATION

Teacher and research worker, man, Ph.D., age 52. Extensive record as college professor of biology and hygiene and investigator, for the past two years engaged in research. **H-499**

Woman with M.S. in public health, University of Michigan, and Ph.D. in health education, New York University, experienced in public schools, teachers colleges, and community public health, now employed as health teaching supervisor, will consider position in school, organization, or industry. **H–236**

Young woman with Master's degree in Health Education, Teacher's College, Columbia University, and background of clinical laboratory work and biochemistry, seeks position as health educator in research or as laboratory assistant in public health. **H–494**

Health Educator, Negro, man with background of High School administration and M.S.P.H. from University of Michigan, seeks position in Health Education. Public agency or educational field. Excellent references. **H–497**

Woman, M.S. in public health, excellent graduate training in education, 8 years' experience as business executive (sales and publicity). Just completed year's research in community education. Seeks good administrative position. **H–496**

Health Educator, M.A. in Education, 10 years' background in community organization for public health education, also teaching of personal and community health at high school and college levels. Public health nurse, able to teach mental and social hygiene as well as general health education. East preferred. **H–498**

Health Educator. Man with M.S. in preventive medicine and public health. Negro. Seeks position in Health Education or field work with official or non-official agency. **H–500**

LABORATORY

Milk Sanitarian and Technologist, age 37, Ph.D. Bacteriology, Wisconsin, 10 years' experience in milk and food sanitation from industrial and official angle, seeks administrative position with opportunity for research or investigational work preferred. **L–381**

Experienced Bacteriologist, man, 56, with long record as successful university teacher, research worker, and head of department of bacteriology and public health, desires new location in educational, research, or public health organization. Available at once. **L–462**

Experienced woman bacteriologist, now employed, graduate Iowa State College 1925, 6 months on Fellowship at Johns Hopkins 1930, wishes position in serology, immunology, bacteriology or research. **L–458**

Experienced laboratory technician. Woman with 17 years in large midwest municipal laboratory. Has 12 years' background in the Kahn test. Excellent references. Immediately available. Will consider any location. **L–460**

Chemist, Sc.D., Biochemistry, Johns Hopkins University. Age 31. Public health laboratory experience, teaching experience. Desires position with promise of advancement, preferably in commercial organization. **L–461**

Pharmacologist. A.B. Johns Hopkins, Ph.D. Maryland 1941. Desires position in public health work. Minors, medicinal and physical chemistry, research experience with sulfanilamide and Vitamin C. Training in bioassay. Publications. Age 29. **L–463**

SANITARY ENGINEERING

Engineer, age 38, 3 years' experience as district sanitary supervisor, state department of health, together with work on plumbing, heating and ventilation. Will consider position in the plumbing or heating field or state department of health. Prefers middle western or western states. **E–453**

Public Health Engineer, M.S. Harvard, experienced in public health and industrial hygiene, wishes position of better sort in public health engineering or industrial hygiene. **E–470**

Public Health Engineer, M.S. Harvard, with more than 10 years' experience including 5 years with state division of sanitation, is available. **E–468**

STATISTICAL

Public Health Statistician. Young man, M.S.P.H. Michigan, now employed as supervisor of state health project, experienced in medical research, epidemiology studies and vital statistics, seeks position in city or state health department in Midwest. **S–458**

Woman with academic, business and research experience in vital statistics seeks a position in the vital statistics division of a state or city health department, preferably as registrar. **S–459**

Advertisement

Opportunities Available

PUBLIC HEALTH PHYSICIANS—(a) Physician well qualified industrial hygiene, particularly venereal diseases; municipal health department; southern metropolis. (b) Assistant director, division of maternal and child health; duties include development well-child conference program, lecturing to lay groups; $3,600–$4,000, travel allowance. (c) Epidemiologist; preferably physician with administrative experience, health department; $3,800–$4,800; East. (d) County health physician; man interested in public health as career required; Midsouth. (e) Assistant to director public health education, eastern state; writing ability important; about $4,000. (f) Woman physician to assist in state-wide educational program in cancer control; able public speaker required; $200, use of car, travel allowance; Midwest. (g) City physician; full-time appointment, college town of 30,000; woman physician eligible; vicinity $4,000. (h) Venereal disease control officer; $3,600; Southeast. PH12-1, Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago.

STUDENT HEALTH PHYSICIANS—(a) State university health service; some teaching experience advantageous. (b) To assist medical director, student health service; midwestern university enrolling 3,500 students; 9 month appointment; $2,400. PH12-2, Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago.

PUBLIC HEALTH NURSES—(a) Senior nurse and executive director; visiting nurse association; industrial city near Chicago. (b) Graduate nurse with degree in public health; $2,100, travel allowance; Midwest. (c) Educational director, state health department; degree in public health, teaching background and supervisory experience required; $2,400. (d) Assistant supervisor, municipal health department; $150, car maintenance; South. (e) City-county nurse; salary if trained public health $125; without specialized training, $107; South. (f) For appointment in New England town; duties include program for schools, classes in "Child Care," coöperation in care of maternity cases; vicinity $1,800. PH12-2,Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago.

BACTERIOLOGISTS — (a) Bacteriologist with background in chemistry; unusual opportunity with large pharmaceutical house; East. (b) Bacteriologist; general hospital, 250 beds; Pacific Northwest. PH12-3, Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago.

Situations Wanted

CERTIFIED PUBLIC HEALTH PHYSICIAN—Bachelor's and medical degrees from southern university; C.P.H., Johns Hopkins; 4 years, director student health service, state university; 5 years, executive position with state health department. PH12-4, Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago.

PUBLIC HEALTH NURSE EXECUTIVE—B.S. in Nursing Education; M.S. in Health Education; certificate in Public Health Nursing; record of successful executive experience in public health field. PH12-5, Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago.

BACTERIOLOGIST—A.B., Ph.D., state university; 6 years, university laboratory of animal pathology; 4 years, parasitologist, state department of public health. PH12-6, Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago.

NEWS FROM THE FIELD

CONFERENCE OF STATE SANITARY ENGINEERS

THE Conference of State Sanitary Engineers held its 22nd Annual Meeting at Atlantic City, N. J., October 12–14.

Officers for the ensuing year were elected as follows:

Chairman: H. D. Schmidt
Vice-Chairman: W. S. Johnson
Executive Committee: F. C. Roberts, A. D. Weston, B. A. Poole
Secretary-Treasurer: H. N. Old

NEW MEXICO PUBLIC HEALTH ASSOCIATION

AT its Sixteenth Annual Meeting, held in Gallup October 30 to November 1, the New Mexico Public Health Association elected the following new officers to serve for the ensuing year:

President: F. C. Diver, M.D., Raton
President-Elect: A. R. Clauser, M.D., Albuquerque
Vice-President: Harrison Eilers, M.D., Las Vegas
Secretary-Treasurer: Frances Fell, Santa Fe
Representative to A.P.H.A. Governing Council: E. F. McIntyre, M.D., Santa Fe

REORGANIZATION IN THE DEPARTMENT OF PREVENTIVE MEDICINE, TULANE UNIVERSITY, NEW ORLEANS

THE undergraduate medical teaching program in preventive medicine and public health at Tulane University is now under the direction of Dr. William Sodeman who has been appointed Professor succeeding Dr. William H. Perkins who has resigned to become Dean of Jefferson Medical College, Philadelphia. Ralph H. Heeren, M.D., formerly of the University Health Department, University of Iowa, is the Associate Professor.

NEGRO HEALTH CENTER

A NEW health center is to be built in Jacksonville, Fla., by funds raised by a group of Negroes, who have become interested in public health. The center will be operated by the Duval County Health Unit, but the lot and the building are being supplied by the Negroes.

INTERNATIONAL SOCIETY OF MEDICAL HEALTH OFFICERS

THE following officers were elected at a meeting in Atlantic City for the year 1942:

President: Dr. Angel G. Brito, Mexico City, Mexico
Vice-President: Dr. J. E. Davey, Hamilton, Ontario
Vice-President: Dr. A. J. Chesley, St. Paul, Minn.
Secretary-Treasurer: Dr. I. C. Riggin, Richmond, Va.
Directors:
Dr. F. E. Harrington, Minneapolis, Minn.
Dr. A. T. McCormack, Louisville, Ky.
Dr. Bertram P. Brown, Los Angeles, Calif.
Dr. N. A. Upchurch, Jacksonville, Fla.
Dr. R. L. Cleere, Denver, Colo.
Dr. Lawrence J. Smith, Springfield, Mass.

INTERNATIONAL ASSOCIATION OF MILK SANITARIANS

THE International Association of Milk Sanitarians held its 30th annual convention at Tulsa, Oklahoma, October 27 to 30. Officers elected for the ensuing year were:

President: Dr. Frederick W. Fabian, Michigan State College
First Vice-President: C. A. Abele, Chicago Health Department
Second Vice-President: Russel R. Palmer, Detroit Health Department
Third Vice-President: Dr. R. G. Ross, Tulsa Health Department
Secretary-Treasurer: C. Sidney Leete, New York State Department of Health

PERSONALS

Central States

CHARLES H. BENNING, M.D., M.P.H.,* former Deputy Commissioner of Health of Oakland County, Mich., for 14 years, and Director of the Royal Oak District Health Department, is now located in Puerto Rico. He was appointed Venereal Disease Consultant by the U. S. Public Health Service, with offices in the Department of Health at Santurce.

PAUL G. BUSS, M.D., formerly of Golden, Ill., has been made Superintendent of the State Health District with headquarters in Macomb.

LUDVIG HEKTOEN, M.D., Executive Director of the National Advisory Cancer Council, received a citation from the State Medical Society of Wisconsin, for distinguished service.

FRED P. HELM, M.D.,† Secretary of the Kansas State Board of Health, Topeka, has been granted a year's leave of absence to do postgraduate work at Johns Hopkins University. He is succeeded by DR. FLOYD C. BEELMAN, who has been appointed Acting Secretary.

RALPH J. JOHNSON,† formerly an engineer with the U. S. Public Health Service, has been appointed Public Health Engineer in the Peoria, Ill., Department of Health.

CHARLES N. STEPHENS, M.D., formerly of Stronghurst, has been appointed Health Officer for Industry, Ill., and vicinity.

RAGNARD T. WESTMAN, M.D., Dr.P.H.,* recently Director of Health in Kansas City, Kans., has resigned to accept a position as Surgeon in the U. S. Public Health Service.

Eastern States

WENDELL R. AMES, M.D., has resigned his position as Epidemiologist with the New York State Department of Health, to accept a position as Commissioner of Health of Cattaraugus County.

ALLAN M. BUTLER, M.D., was commissioned Senior Surgeon in the Reserve of the U. S. Public Health Service, and called to active duty as Regional Medical Officer in the First Civilian Defense Region, with headquarters in Boston, Mass. Dr. Butler has been Assistant Professor of Pediatrics in the Harvard University Medical School.

JOHN A. DEGEN, M.D., Assistant Health Officer in the Utica, N. Y., State District Office, has resigned to accept a position as Epidemiologist with the Harvard Medical Unit in England.

PROFESSOR CURTIS M. HILLIARD,* of the Department of Biology and Public Health, Simmons College, Boston, Mass., is Director of the Health Committee of the Massachusetts State Public Safety Committee.

JOSEPH ROBY, M.D.,† Deputy Health Officer of Rochester, N. Y., since 1904, has retired.

WILLIAM E. STANLEY, C.E.,* has been given a year's leave of absence from his position as Professor of Sanitary Engineering at Cornell University to permit him to take up the duties of Chief of the Sewerage and Incineration Group in the Office of the Quartermaster General, Washington, D. C. Professor Stanley spent the past summer at Columbus, Ind., working on specifications and contract documents for the Southern Indiana Cantonment Project.

C.-E. A. WINSLOW, Dr.P.H.,* of the Department of Public Health at the Yale University School of Medicine, New Haven, Conn., has been Rosen-

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* Fellow A.P.H.A.
† Member A.P.H.A.

berg lecturer in the Public Social Services at the University of California, Berkeley, during the fall semester. Dr. Winslow recently presented two lectures before the faculty of the Medical School on "Modern Public Health Programs," and "Medical Care in Modern Society."

Southern States

GUSTAVUS DENTON BOCK, M.D., U. S. Public Health Service, Washington, D. C., has been appointed Director of the new City-County Public Health Unit established in Boise and Ada, with offices in Boise, Ida.

W. Ross CAMERON, M.D.,* of Baltimore, Md., has been commissioned Senior Surgeon in the U. S. Public Health Service. His assignment will be to serve as Regional Medical Officer for the Third Civilian Defense Area, which includes Pennsylvania, Maryland, Virginia, and the District of Columbia.

MARION FERGUSON, R.N.,† who has been Supervisor of the Bureau of Public Health Nursing, District of Columbia Health Department, Washington, has become Educational Director in the Department of Educational Nursing in the Community Service Society of New York City.

DONALD K. FREEDMAN, M.D., formerly associated with the Social Security Board, Washington, is now P. A. Surgeon (R), U. S. Public Health Service and has been assigned as Medical Adviser to the Division of Defense Housing in the Federal Works Agency, Washington.

DALE A. GARRISON, M.D., formerly of Oklahoma City, Okla., has been appointed Health Officer of Jefferson County, Wash., succeeding DR. LAWRENCE E. FOSTER of Port Townsend.

F. W. KITTRELL,† who for the past 11 years has been connected with the Tennessee State Health Department, is now Engineer-Secretary of the Interstate Commission on the Potomac River Basin, Washington, D. C.

W. S. LEATHERS, M.D.,* was named President-Elect, at the recent annual meeting of the Association of American Medical Colleges held in Richmond, Va. The next meeting of the Association will be held in Louisville, Ky., October 26–28, 1942, at which time Dr. Leathers will be inducted into office.

KATHERINE F. LENROOT,* Chief of the Children's Bureau, U. S. Department of Labor, Washington, has been designated Child Welfare Consultant to the Office of Defense Health and Welfare Services. DR. MARTHA M. ELIOT, the Associate Chief of the Children's Bureau has been designated Liaison Officer with the Office of Civilian Defense. CHARLES I. SCHOTTLAND has been made Liaison Officer with the Office of Defense Health and Welfare Services.

E. R. MATHEWS, is serving as Acting Director of the Division of Sanitary Engineering, South Dakota State Board of Health, succeeding W. W. TOWNE, who was granted a year's leave of absence.

ROBERT E. ROCK, M.D.,† of Opelika, Ala., has been appointed Health Officer of the Carter-Unicoi-Johnson Counties Health District, Tenn.

ALEX B. SHIPLEY, M.D.,† of Elizabethton, Tenn., Health Officer of the Carter - Unicoi - Johnson Counties Health District, has been made Director of a regional health office for East Tennessee.

W. W. TOWNE,† Director, Division of Sanitary Engineering, South Dakota State Board of Health, is now on leave of absence serving as Visiting Assistant Professor, Department of Civil Engineering, University of Missouri.

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* Fellow A.P.H.A.
† Member A.P.H.A.

Medical Library

WILLIAM H. WALCOTT, M.D., of Milan, Tenn., is in charge of a new Health Unit in Carroll County, with headquarters in Huntingdon.

Western States

PETER D. BRINK, M.D., of Pomeroy, Wash., has been appointed Health Officer of Garfield County, Wash.

JOHN A. KAHL, M.D., Walla Walla, Wash., has been appointed Health Officer of the Walla Walla County and City Health Department.

ADOLPH WEINZIRL, M.D.,* has resigned as Health Officer of Portland, Ore., and has been appointed Director of the Social Hygiene Fund and of a new Department of Public Health established recently at the University of Oregon Medical School.

PAUL L. WEST, M.D., Seattle, Wash., has been appointed Health Officer in Chelan County.

DEATHS

J. N. BAKER, M.D.,* State Health Officer of Montgomery, Ala., died on November 9. Dr. Baker was a Member since 1930 and a Fellow since 1932.

R. CLIFFORD ERRICKSON,† Health Officer of Long Branch, N. J., for the last 25 years, died November 17. Mr. Errickson was a past president of the New Jersey State Health Officers Association and the organizer of the Monmouth County Health Unit No. 2.

* Fellow A.P.H.A.
† Member A.P.H.A.

CONFERENCES AND DATES

American Association for the Advancement of Science. Dallas, Tex. December 28–January 2.

American Library Association — Midwinter Conference. Chicago, Ill. December 28–31.

American Public Welfare Association—Round Table and Annual Meeting. Washington, D. C. December 12–14.

American Society of Civil Engineers—Winter Meeting. New York, N. Y. January 21–23, 1942.

American Society of Heating and Ventilating Engineers—Seventh International Heating and Ventilating Exposition. Commercial Museum, Philadelphia, Pa. January 26–30, 1942.

American Society for Public Administration. New York, N. Y. December 27–30.

American Standards Association. New York, N. Y. December 10.

American Statistical Association. New York, N. Y. December 27–31.

American Water Works Association—New York Section—Hotel Commodore, New York, N. Y. December 30.

Florida Public Health Association. Orlando, Fla. December 4–6.

Illinois Public Health Association. Springfield, Ill. December 4–5.

National Council of State Public Assistance and Welfare Directors. Washington, D. C. December 12–14.

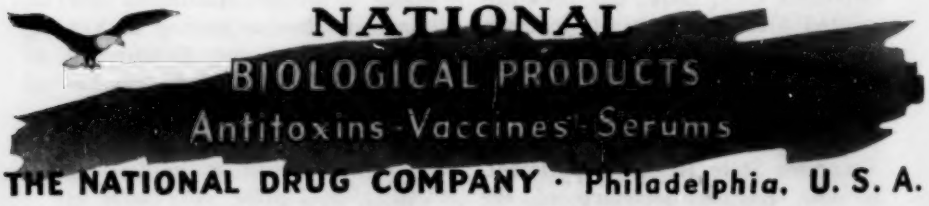
National Public Housing Conference. January 30–31, 1942.

National Society for the Prevention of Blindness. Hotel Astor, New York, N. Y. December 4–6.

New Jersey Health and Sanitary Association, Inc.—All-day conference at the Stacy-Trent Hotel, Trenton, N. J., December 5.

Foreign

Pan American Conference of Directors of Public Health—4th. Rio de Janeiro, Brazil, 1942.



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Mixture C—Types 9, 12, 14, 15, 17, 33.
Mixture D—Types 10, 11, 13, 20, 22, 24, 34.
Mixture E—Types 16, 18, 19, 21, 28.
Mixture F—Types 23, 25, 27, 29, 31, 32.

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1936. Mass. Agr. Expt. Sta. Bull. No. 330.
1937. Chemistry of Food and Nutrition, Fifth Edition, H. C. Sherman, MacMillan, N. Y.
1938. Nutrition Abstracts and Reviews 8, 281.
1939. Food and Life Yearbook of Agriculture, U. S. Dept. Agr., U. S. Government Printing Office, Washington, D. C.

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